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Contents

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DISCLAIMER

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EDITORIAL

A hundred years of hospital-based health care services

Alvin S Concha[1]

This year, the Southern Philippines Medical Center (SPMC) is celebrating its centennial as a hospital. What is now SPMC used to be called Davao Hospital in 1917.[1] It started as the provincial hospital of Davao Province—or today's Region XI (Davao Region)—under the supervision of Dr JD Long, the Bureau of Health (BOH) director at that time.[2] At 100 years old, SPMC is the oldest government-owned hospital in Davao Region.

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In 1917, before the actual construction of the first structures of Davao Hospital, Dr Long wrote in the Foreword of the BOH Bulletin on 'Provincial hospitals - Their construction and management:'

> "While the first and principal duty of a health service is to prevent the appearance and spread of disease, rather than attempt its cure after having appeared, it is recognized that, until the public is educated to the point that disease can be prevented or eradicated in its incipiency, all reasonable means must be used to cure those who are suffering, for two reasons: (1) To save the life of the individual, if possible, and (2) to instruct the individual and his(/her) family so far as may be possible, during illness or convalescence, in preventive measures for his(/her) own and his(/her) family's future protection."[3]

A century ago, Dr Long articulated the health care principles that we still follow today: that hospital services do not only involve diagnostics and therapeutics to save lives or restore health; communicating health information through patient and public education is also an essential component of health care services that helps prevent illnesses and curb health problems.

SPMC's latest iteration of its vision statement reads: "A world-class, service-oriented medical center" (AWSOM Center). A hundred years after the establishment of this former provincial hospital, SPMC is facing challenges that are way more complex than the standard diagnostics-therapeutics-education combination of health care service delivery. Today, it is the mission of SPMC to "provide accessible, equitable, holistic and responsive health care services; produce outstanding, compassionate and competent health professionals through training and development; and engage in ethical and relevant researches to continuously improve the quality of health care."[4] SPMC added new layers of relevant attributes of health care to enhance its diagnostic, therapeutic and health education commitments to the public.

An emerging area of concern in health care delivery involves the quality of the hospital's engagement with its clients. This relatively new service framework recognizes that patients, as clients of health care services, expect "better information, better processes and a better understanding of what they're getting for their money"[5 6] The framework puts the 'patient experience revolution' at the centerpiece of its policy-making and operations design considerations.[6 7] This emphasis on having a better health care experience is happening because there is now a wide range of health care choices (think lying-in clinics, dialysis centers, diagnostic centers, ambulatory surgery clinics, etc.), and many patients are willing to pay a premium to make their health care experience a little more convenient, more comfortable, or even pleasantly memorable. The availability of social media also helps feed this demand, by allowing easy comparison of choices of health care services and even easier viewing of crowdsourced feedback on such services. Several institutions elsewhere have invested a considerable amount of resources in improving the health care experience of patients.[8 9] SPMC has also started deploying public assistance officers, health care navigators, and patient ward assistants to ensure better client engagement and to, indeed, provide better patient experience of health care.

With the way things are changing, it won't take another century until new paradigms of hospital services start to develop and demand appropriate responses. The steadfast service philosophy of SPMC will make this hospital live on for better than a hundred years more.

In this issue

In this SPMC Centennial Issue of the

SPMC Journal of Health Care Services, we give focus to an exploration of health care in the past in this part of the world. One article describes and illustrates the health care system of Davao Province in 1917, immediately prior to the establishment of Davao Hospital (Roño, 19-21). Another article retraces Davao Hospital's relevant legislations and official documents, the hospital's names through the years, and development of health care services beginning a hundred years ago (Ampog, et al., 26-32). A third article presents and discusses trends in the top causes of mortality and morbidity in the Philippines from 1960 to 2013 (Ladrero, et al., 22-25). Also in this issue, we republish a 90-year-old case report written by a former resident physician at Davao Public Hospital, another old name of SPMC (Belisario, 33-37). Along with this republication, we also publish some notes on its legal compliance (Timajo, 38), as well as a commentary on the health care services mentioned in the report, and the form and tone of writing of the article (Barinaga, 39-40). All these provide the contexts that at least partly explain how we arrived at this particular moment of health care services in SPMC.

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RESEARCH

Effectiveness and safety of sutureless glue-free conjunctival autograft versus sutured conjunctival autograft in primary pterygium surgery: randomized controlled trial

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ABSTRACT

Background. While sutured conjunctival autografting after excision of primary pterygium is associated with low pterygium recurrence rates, patients who undergo the procedure commonly complain of postoperative foreign body sensation and granuloma formation.

Objective. To compare the surgery time, effectiveness, and safety of sutureless glue-free conjunctival autograft (SCLA) and sutured conjunctival autograft (SCA) in primary pterygium surgery.

Design. Randomized controlled trial.

Setting. Department of Ophthalmology, Southern Philippines Medical Center, Davao City, from September 2014 to September 2015.

Participants. 84 male and female patients with primary pterygium.

Interventions. Random allocation to either SLCA or SCA after pterygium excision.

Main outcome measures. Mean surgery time, graft loss and pterygium recurrence rates.

Main results. Forty-two (50%) patients received SCA, and the rest received SLCA. The two treatment groups were comparable at baseline in terms of patients' mean age, sex distribution, mean visual acuity, mean degree of astigmatism, and frequencies of chief complaints and grades of pterygium. Mean surgery time was faster in SLCA (16.42 ± 2.97 minutes versus 25.35 ± 3.35 minutes; p<0.0001). Three patients (7.14%) in SLCA versus none in SCA had graft loss, but the difference was not significant (p= 0.2410). Postoperatively, the rate of patient-reported foreign body sensation was lower in SLCA (11/42, 26.19% versus 35/42, 83.33%; p<0.0001). On intention-to-treat analysis, graft edema was more common in SCA, and the rates of pterygium recurrence, granuloma formation, subgraft hemorrhage, and graft edge dehiscence were comparable between the two groups, but these inferences were not robust to sensitivity analyses.

Conclusion. SCLA had faster surgery time, similar graft loss and pterygium recurrence rates, and lesser postoperative foreign body sensation rate when compared to SCA after primary pterygium surgery.

Keywords. autologous blood, graft retention, graft edema, foreign body sensation, subgraft hemorrhage

INTRODUCTION

Excision followed by autologous conjunctival transplantation is the treatment of choice for pterygium.[1] The approach yields a low 5-10% pterygium recurrence, compared to up to 80% recurrence after the bare sclera technique.[2] In choosing the best technique in pterygium surgery, it is important to take into consideration different factors such as surgery time, postoperative complications, recurrence rate, as well as cosmesis. Sutured conjunctival autografts pose postoperative problems such as foreign body sensation, discomfort, and granuloma formation.[3]

Sutureless grafting has been explored to address the postoperative complications of sutured conjunctival autograft.[4] Instead of sutures, fibrin glue has been used as tissue adhesive for conjunctival autograft, and it has been shown to drastically reduce the surgical time and recurrence rate of pterygium, and improve postoperative patient

IN ESSENCE

Conjunctival autografting on the bare sclera after pterygium excision promotes healing and prevents pterygium recurrence.

In this randomized controlled trial, the sutureless glue-free technique of autografting had faster surgery time, similar rate of graft loss, and lesser rate of postoperative foreign body sensation, when compared to the conventional sutured technique of autografting.

By intention-to-treat analysis, pterygium recurrence rates were comparable between sutureless glue-free technique and sutured technique, but the inference was not robust to sensitivity analyses.

comfort and cosmesis.[5] However, since fibrin glue is a blood derivative, it may theoretically transmit blood-borne diseases. On the other hand, the processing of fibrin glue derived from the patient's own blood can take up to 24 hours and is costly. The processing may also produce varying concentrations of clotting factors that provide unpredictable performance.[6] The sutureless, glue-free conjunctival autograft technique, which uses autologous blood coagulum as a graft adhesive, has been suggested as an alternative to using fibrin glue.[7]

We did this study to compare the conventional sutured conjunctival autograft and the sutureless glue-free conjunctival autograft after primary pterygium excision in terms of surgery time, graft loss, and pterygium recurrence.

METHODS

Study design and setting

We did an open-label randomized controlled trial from September 2014 to September 2015 among patients diagnosed with primary pterygium at the Ophthalmology Outpatient Clinic in Southern Philippines Medical Center, a tertiary hospital in Davao City. The clinic caters to about 23,000 clinic visits, including an average of 200 pterygium surgeries, annually.

Participants

Patients 25 to 70 years old with Grade 2 to 4 pterygium[8] complaining of foreign body sensation, redness, tearing and blurring of vision were chosen for the study. Excluded were patients regularly taking aspirin or other anticoagulants, those with coagulation factor deficiencies, uncontrolled systemic illnesses, eye infections and other eye pathologies.

To determine the minimum sample size for this study, we assumed that sutured autografts would have a 5% graft loss rate. Calculation was done in order for the study to detect a 25% difference in graft loss rates between the two intervention groups as statistically significant. In a statistical test for comparison of two proportions carried out at a <5% level of significance, a minimum sample size of 36 per group will have 80% power of rejecting the null hypothesis if the alternative holds. For this study, we screened 102 eligible patients, but we had to exclude 18 patients because they either refused to participate, or had one or more exclusion criteria (Figure 1). We recruited a total of 84 patients into this study.

Interventions and randomization

We randomly assigned patients undergoing pterygium excision to receive either sutured conjunctival autograft (SCA) or sutureless glue-free conjunctival autograft (SLCA). All the surgeries were performed by a single surgeon to maintain uniformity of surgical technique across all patients.

For each autograft procedure, the donor inferior bulbar conjunctival graft was taken from the same eye with the pterygium. After surgery, the operated eye was covered with a gauze patch. The patients were instructed not to take off the patch and to avoid rubbing their affected eyes. We prescribed oral mefenamic acid 500 mg every 8 hours as needed for pain. Removal of gauze patches was done by the surgeon the next day on follow up. We prescribed tobramycin + dexamethasone eye drops, one drop on the affected eye, four times a day for two weeks. For patients who received SCA, sutures were removed 1 week postoperatively.

Data collection

We gathered baseline demographic and clinical data of the patients including age, sex, visual acuity, degree of astigmatism, chief complaint and grade of pterygium.[9] We also recorded the surgery time for each procedure by measuring the duration from the initial cutting of the pterygium to the removal of lid retractor at the end of the surgical procedure.

We instructed the patients to return to our clinic for follow up and reassessment on day 1, week 1, month 1, month 2 and month 3 postoperatively. Every follow up visit, we repeated the measurements of visual acuity and degree of astigmatism, and we evaluated the graft area under a slit-lamp. Patients who did not come for two consecutive times during the scheduled follow up visits were considered lost to follow up.

The main outcome measures for this study were surgery time, graft loss rates and pterygium recurrence rates. We determined the presence or loss of the autograft during follow up one day after surgery. Pterygium recurrence was considered when a new pterygium developed in the surgical site within three months after excision of the primary pterygium. For secondary outcomes, we measured the postoperative visual acuity and percentage of astigmatic reduction from

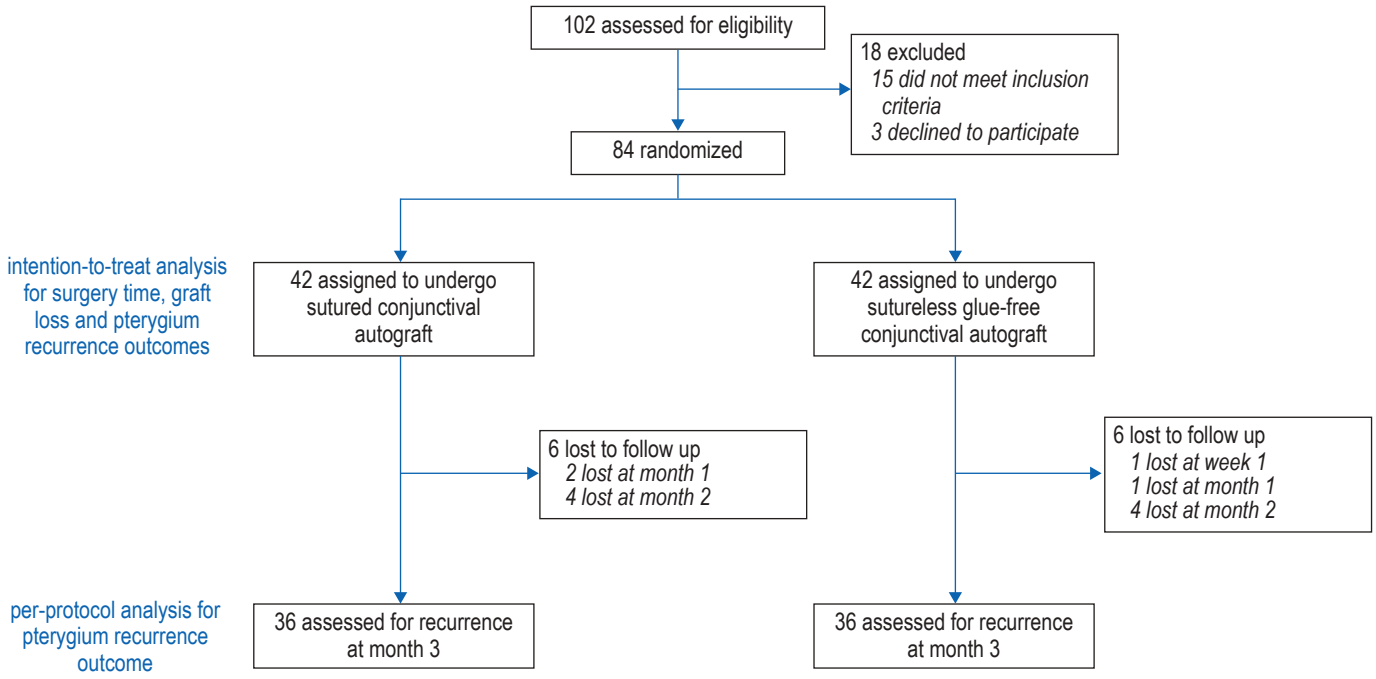

Figure 1 Screening, randomization, follow up, and analysis of patients in the study.

baseline, and compared their respective means between the two groups. We also determined the presence of graft edema, granuloma formation, subgraft hemorrhage, graft edge dehiscence, and patient-reported foreign body sensation, and compared their respective rates between the groups. Study outcomes were separately assessed by three ophthalmologists.

Statistical analysis

The primary analysis for this study was done using the intention-to-treat (ITT) approach. For all outcomes, the ITT population included all patients who were randomized to either of the two interventions. Missing continuous data were filled in by last-observation-carried-forward method. To evaluate the robustness of the ITT inferences, we also performed per-protocol analyses that only included data of patients who were assessed for specific outcomes according to the protocol, even if the patients were subsequently lost to follow up. Additional sensitivity analyses for binary outcomes were done by making several sets of assumptions (best and worst case scenarios) about the outcomes in patients who did not have the outcome before they were lost to follow up and repeating the analyses per set of assumptions. Continuous data were summarized as means ± standard deviations and compared using t-test. Categorical data were summarized using frequencies and percentages and compared using chi-square test or Fisher's exact test. A two-tailed p-value of <0.05 was considered significant. All statistical tests were done using Epi Info 7.1.4.0.

RESULTS

Patients' characteristics

Of the 84 patients recruited into this study, 42 (50%) were randomized to SCA, while the rest were randomized to SLCA. Table 1 shows the baseline demographic and clinical characteristics of the patients and mean surgery times for the two intervention groups. Both groups were comparable at baseline in terms of mean age, sex distribution, mean visual acuity, mean degree of astigmatism, frequencies of chief complaints, and frequencies of the different grades of pterygium.

Postoperative follow up

Figure 1 shows the details of patient follow up after the interventions. Follow up was complete on the first postoperative day. On postoperative week 1, one patient from SLCA was lost to follow up. By the third postoperative month, a total of six patients

Table 1 Baseline patients' characteristics

Characteristics	SCA n=42	SLCA n=42	p-value
Mean age ± SD, *years*	54.79 ± 13.40	51.17 ± 14.03	0.2303
Sex, *frequency (%)*			0.2740
Male	22 (52.38)	17 (40.48)	
Female	20 (47.62)	25 (59.50)	
Mean visual acuity ± SD*	0.66 ± 0.31	0.75 ± 0.24	0.1382
Mean degree of astigmatism ± SD, *diopters*	0.98 ± 1.07	0.72 ± 0.67	0.1899
Chief complaint, *frequency (%)*			0.2441
Blurring of vision	5 (11.90)	8 (19.05)	
Foreign body sensation	13 (30.95)	18 (42.86)	
Tearing	16 (38.10)	8 (19.05)	
Eye redness	8 (19.05)	8 (19.05)	
Grading of pterygium, *frequency (%)*			0.6895
II	25 (59.52)	27 (64.29)	
III	13 (30.95)	13 (30.95)	
IV	4 (9.52)	2 (4.76)	

* Converted to decimal.

from the SLCA group and a total of six patients from the SCA group were lost to follow up. Hence, per-protocol analysis of the pterygium recurrence outcome only included 36 patients from the SLCA group and 36 patients from the SCA group. Some patients from both groups were assessed to have postoperative graft edema, granuloma formation, subgraft hemorrhage, graft edge dehiscence or patient-reported foreign body sensation before they were lost to follow up, so their respective data were accounted for in all the analyses performed in this study.

Intention-to-treat analysis

Intention-to-treat analysis of postoperative outcomes between the two intervention arms are shown in Table 2. The mean surgical time was significantly longer in the SCA group than in the SLCA group (25.35 ± 3.35 minutes versus 16.42 ± 2.97 minutes; p<0.0001). None in the SCA group and 3/42 (7.14%) patients in the SLCA group had graft loss on the first postoperative day, but the difference was not statistically significant (p=0.2410). Similarly, none in the SCA group and 3/42 (7.14%) patients in the SLCA group—the same three patients who had graft loss—had pterygium recurrence within three months postoperatively, but the difference was not statistically significant (p=0.2410). On postoperative day 1, percentage of astigmatic reduction was significantly higher in the SLCA group than in the SCA group (19.04 ± 33.00 versus 7.74 ± 14.01; p=0.0444). During the 3-month postoperative follow up, graft edema was significantly more common in the SCA group (32/42, 76.19%) than in the SLCA group (23/42, 54.76%; p=0.0389). Likewise, foreign body sensation was significantly more common in the SCA group (35/42, 83.33%) than in the SLCA group (11/42, 26.19%; p<0.0001) during the follow up period. Other clinical outcomes such as granuloma formation, subgraft hemorrhage, and graft edge dehiscence were comparable between groups. The two patients with granuloma formation in the SLCA group subsequently underwent granuloma excision. All patients with graft edema, subgraft hemorrhage or graft edge dehiscence were observed for progression of their conditions, but none required further intervention.

Per-protocol analysis

Table 2 also shows the per-protocol analysis of the postoperative outcomes between the two interventions. Since patient follow up was complete during the assessment of mean surgical time (end of surgery), graft loss (day 1), day 1 postoperative mean visual acuity, and day 1 postoperative percentage of astigmatic reduction, no per-protocol analyses on the respective outcomes were done. Per-protocol analysis for the outcome on graft edema showed that the rates did not significantly differ between the two groups (32/42, 76.19% in SCA versus 23/41, 56.10% in SLCA; p=0.0529). Results of the per-protocol analysis of the rest of the outcomes—pterygium recurrence, foreign body sensation, granuloma formation, subgraft hemorrhage, graft edge dehiscence, postoperative mean visual acuity, and postoperative percentage of astigmatic reduction—did not differ from the respective intention-to-treat analysis results.

Sensitivity analysis

Sensitivity analyses using best and worst case scenarios for the outcome results of patients who did not have the outcome before they were lost to follow up are shown in Table 3. The results of the pterygium recurrence, graft edema, granuloma formation, subgraft hemorrhage, and graft edge dehiscence outcomes were inconsistent across the scenarios in their respective sensitivity analyses. Only the results of the foreign body sensation outcome were consistent across all

Table 2 Clinical outcomes

Characteristics	Intention-to-treat analysis			Per-protocol analysis				
	SCA (n=42)	SLCA (n=42)	p-value	n	SCA	n	SLCA	p-value
Mean surgery time ± SD, *minutes*	25.35 ± 3.35	16.42 ± 2.97	<0.0001					
Graft loss, *frequency (%)*	0 (0.00)	3 (7.14)	0.2410†					
Pterygium recurrence, *frequency (%)*	0 (0.00)	3 (7.14)	0.2410†	36	0 (0.00)	36	3 (8.33)	0.2394†
Postoperative mean visual acuity ± SD								
Day 1	0.66 ± 0.31	0.75 ± 0.24	0.1204					
Week 1	0.66 ± 0.31	0.75 ± 0.24	0.1204	42	0.66 ± 0.31	41	0.75 ± 0.24	0.1486
Month 1	0.66 ± 0.31	0.75 ± 0.24	0.1204	40	0.66 ± 0.31	40	0.75 ± 0.24	0.1208
Month 2	0.66 ± 0.30	0.75 ± 0.24	0.1264	36	0.66 ± 0.30	36	0.76 ± 0.24	0.1022
Month 3	0.66 ± 0.30	0.75 ± 0.24	0.1264	36	0.66 ± 0.30	36	0.76 ± 0.24	0.1022
Postoperative mean astigmatism % reduction ± SD								
Day 1	7.74 ± 14.01	19.04 ± 33.00	0.0444*					
Week 1	10.18 ± 20.37	19.38 ± 28.30	0.0910	42	10.18 ± 20.37	41	19.85 ± 28.48	0.0783
Month 1	15.50 ± 40.88	19.10 ± 24.58	0.6692	40	15.79 ± 41.89	40	19.10 ± 24.90	0.6683
Month 2	11.42 ± 29.19	20.04 ± 25.00	0.1499	36	12.21 ± 31.36	36	22.34 ± 26.15	0.1412
Month 3	10.91 ± 19.79	17.58 ± 26.24	0.1925	36	11.96 ± 20.99	36	19.86 ± 27.58	0.1757
Graft edema, *frequency (%)*	32 (76.19)	23 (54.76)	0.0389*	42	32 (76.19)	41	23 (56.10)	0.0529
Foreign body sensation, *frequency (%)*	35 (83.33)	11 (26.19)	<0.0001*	40	35 (87.50)	37	11 (29.73)	<0.0001*
Granuloma formation, *frequency (%)*	0 (0.00)	2 (4.76)	0.4940†	36	0 (0.00)	36	2 (5.56)	0.4930†
Subgraft hemorrhage, *frequency (%)*	0 (0.00)	1 (2.38)	1.0000†	36	0 (0.00)	36	1 (2.78)	1.0000†
Graft edge dehiscence, *frequency (%)*	0 (0.00)	3 (7.14)	0.2410†	36	0 (0.00)	36	3 (8.33)	0.2394†

* Significant at p<0.05.
† Fisher's exact test.

scenarios in the sensitivity analysis and per-protocol analysis, and had the same inference as in the intention-to-treat analysis.

DISCUSSION

Key results

We did this study in order to find out whether SLCA is comparable to SCA after primary pterygium excision. Surgery was significantly faster in the SLCA group. The two autograft approaches did not significantly differ in terms of graft loss rates. The SLCA group had a lesser rate of foreign body sensation postoperatively. There was also greater astigmatic reduction in the SLCA group a day after the surgery, but astigmatic reductions became comparable between the two groups after day 1. Visual acuity were comparable between the two groups throughout the whole postoperative follow up period. By intention-to-treat analyses, SCA had higher rates of graft edema compared to SLCA, and both groups did not significantly differ with each other in terms of pterygium recurrence, granuloma formation, subgraft hemorrhage, and graft edge dehiscence, but all these results were not robust to sensitivity analyses.

Strengths and limitations

We were able to demonstrate that sutureless glue-free conjunctival autograft can be used as an alternative technique to sutured conjunctival autograft in pterygium surgery. Some advantages were evident in favor of SLCA, including significantly less foreign body sensation and faster surgery time.

Shortened surgery time greatly helps surgeons cater to more patients, especially during surgical missions. The sutureless technique also eliminates the need for an additional follow up for suture removal and decreases the possibility of complications brought about by the introduction of sutures into the graft.

There were some limitations in this study. We did not monitor some factors that could possibly affect the outcomes that we measured, such as rubbing of the eyes post-operatively and other practices that may dislodge the autograft. The inferences on pterygium recurrence rate, graft edema,

Table 3 Sensitivity analyses using best and worst case scenarios

Characteristics	Scenario 1*			Scenario 2†			Scenario 3‡		
	SCA (n=42)	SLCA (n=42)	p-value	SCA (n=42)	SLCA (n=42)	p-value	SCA (n=42)	SLCA (n=42)	p-value
Pterygium recurrence, *frequency (%)*	6 (14.29)	9 (21.43)	0.3927	6 (14.29)	3 (7.14)	0.2899	0 (0.00)	9 (21.43)	0.0024§‖
Graft edema, *frequency (%)*	32 (76.19)	24 (57.14)	0.0641	32 (76.19)	23 (54.76)	0.0389§	32 (76.19)	24 (57.14)	0.0641
Foreign body sensation, *frequency (%)*	37 (88.10)	16 (38.10)	<0.0001§	37 (88.10)	11 (26.19)	<0.0001§	35 (83.33)	16 (38.10)	<0.0001§
Granuloma formation, *frequency (%)*	6 (14.29)	8 (19.05)	0.5582	6 (14.29)	2 (4.76)	0.2646‖	0 (0.00)	8 (19.05)	0.0054§
Subgraft hemorrhage, *frequency (%)*	6 (14.29)	7 (16.67)	0.7629	6 (14.29)	1 (2.38)	0.1092	0 (0.00)	7 (16.67)	0.0119§‖
Graft edge dehiscence, *frequency (%)*	6 (14.29)	9 (21.43)	0.3927	6 (14.29)	3 (7.14)	0.4827‖	0 (0.00)	9 (21.43)	0.0024§‖

* Scenario 1 - All patients who did not have the outcome before they were lost to follow up were assumed to have the outcome.
† Scenario 2 - All patients in SCA group who did not have the outcome before they were lost to follow up were assumed to have the outcome. All patients in the SLCA group who did not have the outcome before they were lost to follow up were assumed not to have the outcome.
‡ Scenario 3 - All patients in the SCA group who did not have the outcome before they were lost to follow up were assumed not to have the outcome. All patients in SLCA group who did not have the outcome before they were lost to follow up were assumed to have the outcome.
§ Significant at $p<0.05$.
‖ Fisher's exact test.

granuloma formation, subgraft hemorrhage, and graft edge dehiscence were not robust. This is probably related to the limited power of the study to generate inferences from only those patients who were able to return for follow up assessment.

Interpretation

The sutureless glue-free technique omits the time-consuming step that involves suturing of the autologous conjunctival graft to the adjacent conjunctiva over the recipient bed.[7] Thus, in our study, the mean surgery time for performing the sutureless technique was significantly faster.

Graft retention is of utmost importance in pterygium surgery, since the conjunctival graft helps prevent pterygium recurrence.[2] The main disadvantage of SLCA group is graft loss in the immediate postoperative period. However, once a sutureless autograft is retained in the first postoperative day, it will stick throughout healing period.[10]

Postoperative foreign body sensation was more common among patients in our study who received SCA. Sutures used in the procedure contribute to this symptom and can also cause eye irritation.[10] Sutureless grafts provide patients with a more comfortable postoperative experience.

Astigmatism may occur in pterygium because, as the lesion encroaches the cornea, the normal corneal curvature may be distorted. Removal of the pterygium is expected to reduce or correct the astigmatism.[11] The use of sutures to hold conjunctival autografts in place can cause tension in the cornea and can result in or maintain astigmatism. In our study, we did not find any postoperative visual deterioration, increase in astigmatism or development of any sight-threatening complications among our patients. On the first postoperative day, we found out that the decrease in astigmatism was significantly greater among patients in the SLCA group. From week 1 onwards, however, the two groups were comparable in terms of percentage of astigmatic reduction. Among patients who received SCA, the additional percentage of astigmatic reduction could be the effect of removal of sutures from the autograft on week 1. Pterygium excision may also improve visual acuity due to the clearance of visual axis afforded by the procedure,[12] but we were not able to demonstrate this in our study.

In our study, complications from pterygium excision and conjunctival autografting were very minimal. Two participants had granuloma formation and subsequently underwent granuloma excision. Graft edema, subgraft hemorrhage and graft edge dehiscence all resolved spontaneously without needing further management. These complications are self-limited and usually do not require further intervention.[10]

Based on varying results from the different analyses performed in this study, we do not have conclusive inference on the comparative recurrence rates of SCA and SLCA. What we do know is that the three patients who had pterygium recurrence were the same patients who had graft loss at day 1.

A successful graft helps prevent pterygium recurrence. The presence of a conjunctival epithelial defect, such as an exposed sclera, induces vigorous fibrovascular proliferation that leads to pterygium recurrence.[13] Apart from graft loss, are other factors that may increase the risk for pterygium recurrence. A study identified age <40 years and the presence of postoperative complications, such as graft edge dehiscence, graft failure, or graft damage, to be significant risk factors.[13]

Generalizability

We did this study among patients with varied demographic characteristics and clinical profile. The signs and symptoms presented by the patients at baseline were typical of pterygium. Hence, the results of this study can be applicable to most patients diagnosed with pterygium. Our findings support the use of the sutureless glue-free technique in performing conjunctival autograft, as it is comparable with the sutured technique, with the added advantages of shorter surgery time and lesser chances of having postoperative foreign body sensation. In the future, studies with better statistical power can be conducted in order to build conclusive evidence on the rates of pterygium recurrence, graft edema, granuloma formation, subgraft hemorrhage, and graft edge dehiscence among patients receiving conjunctival autografts using the sutureless glue-free technique. Inferences around the use of this technique can also be improved by investigating the role of postoperative factors, such as eye rubbing and other practices that may cause autograft displacement, on foreign body sensation, graft loss, and pterygium recurrence, foreign body sensation, and other postoperative complications.

CONCLUSION

In this randomized controlled trial, surgery time was faster among patients who received SLCA than among those who received SCA. The two groups did not significantly differ in terms of graft loss rates and postoperative visual acuity. The SLCA group had a lesser rate of postoperative foreign body sensation and greater astigmatic reduction on postoperative day 1. Astigmatic reductions from week 1 onwards were comparable between the two groups. Graft edema was more frequent in the SCA group, and the rates of pterygium recurrence, granuloma formation, subgraft hemorrhage, and graft edge dehiscence did not significantly differ between the groups, but these inferences were not robust.

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Ethics approval

This study was reviewed and approved by the Department of Health XI Cluster Ethics Review Committee (DOH XI CERC reference P14053102).

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SPMC JHCS

CASE REPORT

Atypical cutaneous and mucosal lichen planus in a 53-year-old Filipino male: case report

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ABSTRACT

Lichen planus (LP) is a rare papulosquamous inflammatory disease. We report a 53-year-old male with a 6-month history of multiple, pruritic, brown, atrophic macules on the face. He also had erythematous, pruritic, scaly papules on the trunk, lower back, genitalia and the extensor surface of the upper extremities, as well as plaques with erosions on the lower lip and buccal mucosa. The initial diagnosis of atypical LP was made through dermatoscopy and confirmed through skin punch biopsy and direct immunofluorescence. The patient was successfully treated with topical corticosteroids and chlorhexidine gluconate mouthwash initially, followed by an 8-week course of oral corticosteroids.

Keywords. Wickham striae, Max Joseph cleft, papulosquamous disease, direct immunofluorescence, dermatoscopy

INTRODUCTION

Lichen planus (LP) is a unique papulosquamous dermatosis affecting the skin, mucous membranes, nails and hair.[1] The typical lesions are faintly erythematous to violaceous, flat-topped, polygonal papules that are symmetrically and bilaterally distributed on the flexural areas of the extremities.[2] The prevalence of LP in the general population has been estimated to range from 0.1 to 4%.[3 4] Based on the Philippine Dermatological Society Health Information System, among 422,998 dermatologic consults from 2011 to 2016, 303 were cases of LP (7 per 10,000 dermatologic consults, or 0.07%).[5] The usual onset of LP lesions in two thirds of patients is within 30-60 years of age.[3] Nails may exhibit onycholysis, onychorrhexis, subungual hyperkeratosis and/or anonychia, but the classic nail finding is pterygium, or the forward formation of the eponychium.[2] Dermatoscopy of a lesion usually reveals Wickham striae, which are networks of linear or pinpoint whitish structures and are pathognomonic of LP.[6] In this article, we describe the case of a 53-year old male presenting with atrophic macules on the face and scaly papules on the extensors. Dermatoscopic and histopathologic findings were consistent with LP.

CLINICAL FEATURES

A 53-year-old male came to our clinic with a 6-month history of gradual development of multiple, reddish, elevated, and itchy lesions on the face and extensor areas of the upper and lower extremities. He also noted gradual thickening and increased brittleness of his nails. The pruritus intensified over time, while the initially elevated lesions on the face gradually flattened. Similar reddish lesions, which eventually progressed to painful erosions, developed on the patient's lower lip, buccal mucosa, and genitalia starting two months prior to consultation. A dermatologist prescribed clobetasol propionate 0.05% lotion, which the patient applied on the lesions twice daily. The lesions did not change, and symptoms were not resolved after one week of treatment, so the patient decided to consult us. A review of systems and the patient's past medical history were unremarkable. The patient did not recall experiencing flu-like symptoms, sore throat or weight loss prior to the onset of the

IN ESSENCE

Lichen planus (LP) is a rare papulosquamous dermatosis that can be diagnosed with the aid of dermatoscopy.

A 57-year-old male patient presented with a 6-month history of sparse, erythematous, cutaneous papules and macules, and mucosal plaques with erosions. We diagnosed the patient as having atypical LP after we saw Wickham striae on some of his lesions using a dermatoscope.

The patient's cutaneous and mucosal lesions responded to an initial course of topical corticosteroids and chlorhexidine gluconate mouthwash, followed by an 8-week course of oral prednisone.

lesions. None of his immediate family members had skin cancer, other malignancies or similar skin lesions.

Physical examination, which centered on the skin, revealed multiple, dark brown, and discrete atrophic macules with well-defined edges on the face, as well as sparse, erythematous, well-demarcated, and symmetrically distributed papules on the trunk, lower back, and extensors of the upper extremities (Figure 1). There were also multiple, ill-defined, whitish, and reticulated plaques with erosions on the patient's lower lip and buccal mucosa (Figure 1). The coronal sulcus at the dorsum of the patient's penis had erythematous papules in agminate pattern, with shiny, whitish, and thin scales over the papules. The fingernails exhibited onycholysis, onychodystrophy, chromonychia, and subungual hyperkeratosis (Figure 2). There were no apparent changes in the toenails.

DIAGNOSTIC APPROACHES

We examined several lesions under a dermatoscope. Lesions from the forehead, lips, and legs had Wickham striae—polymorphic pearly white lines arranged in tree-like, lace-like or fern-leaf pattern (Figure 3). The fingernails exhibited subungual hyperkeratosis, onycholysis, destruction of the nail plate, and chromonychia. Because the presence of Wickham striae on papules, macules, and plaques is characteristic of LP,[2] our subsequent diagnostic approach was geared towards confirming the diagnosis.

Skin punch biopsies from an erythematous papule on the left leg and from a purple

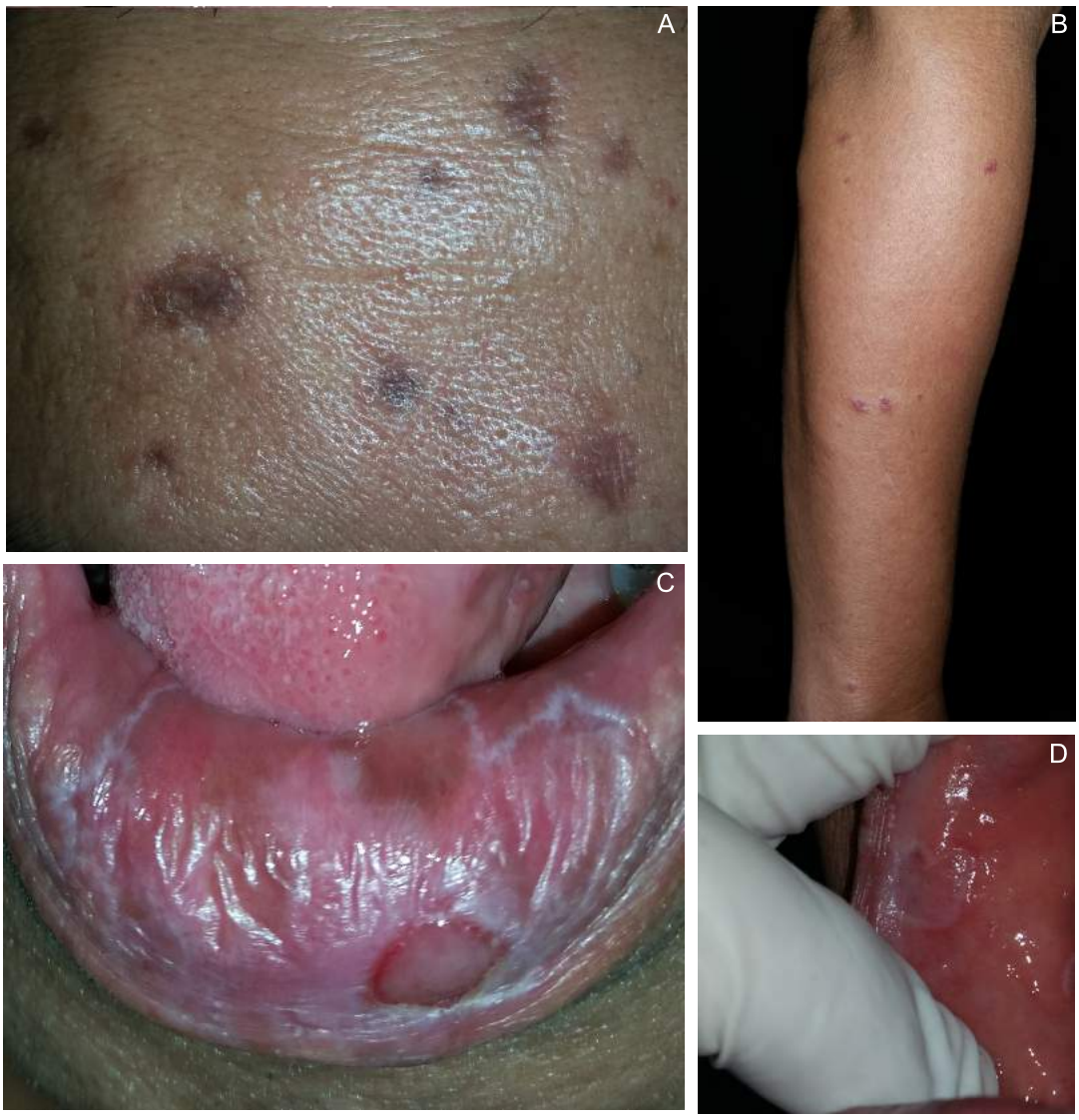

Figure 1 Dark brown atrophic macules on the forehead (A), sparse erythematous papules on the extensor area of the right forearm (B), whitish reticulated plaque with erosion on the lower lip (C), and eroded plaque with well-defined whitish border on the buccal mucosa (D).

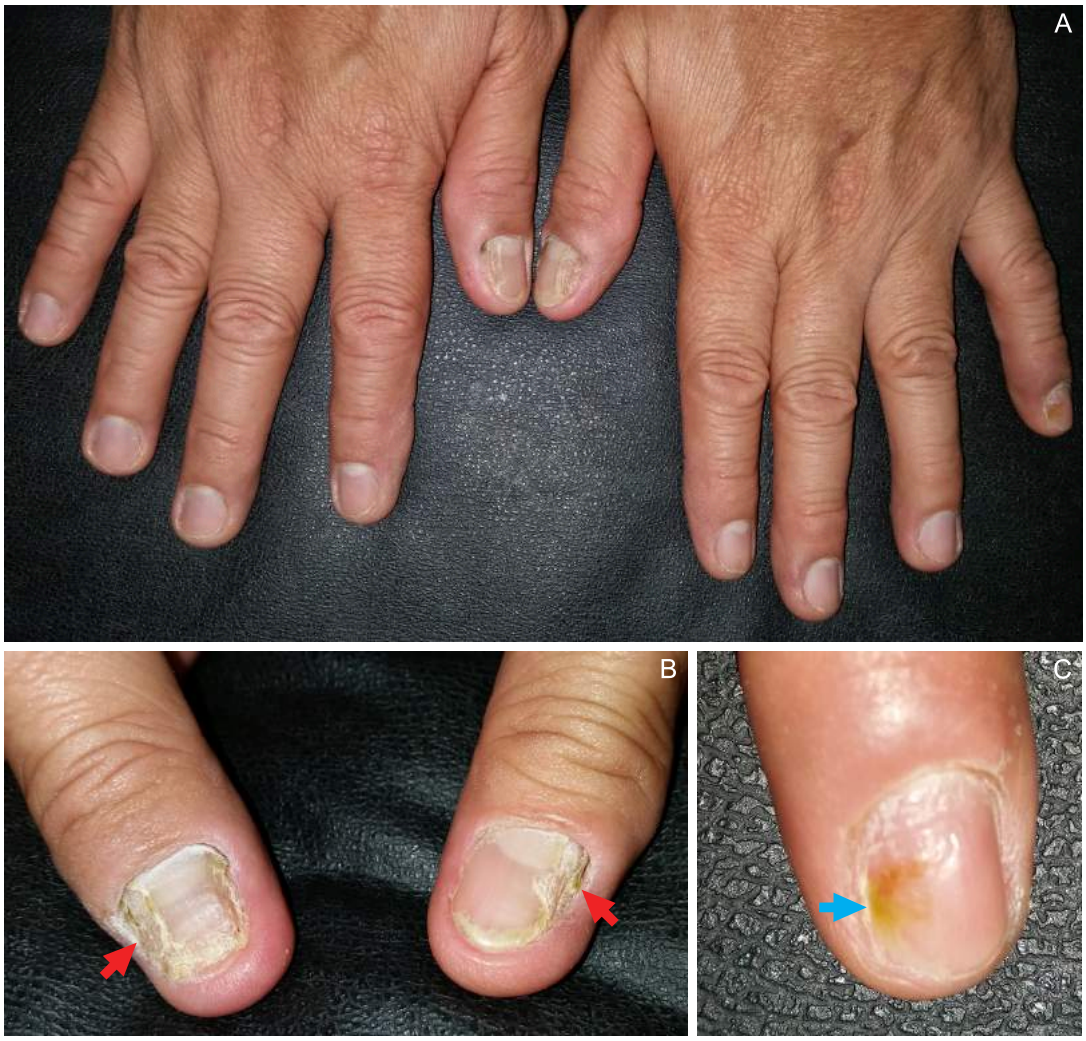

Figure 2 Involvement of the fingernails of both hands (A), with onychodystrophy (B: red arrows), and chromonychia (C: blue arrow).

atrophic patch on the left mandibular area (Figure 4) revealed basket-weave orthokeratosis of the epidermis, epidermal hyperplasia (acanthosis), thickened stratum granulosum (hypergranulosis), sawtooth configuration of the rete ridge, and vacuolar degeneration of the basal layer. A horizontally elongated subepidermal space (Max Joseph cleft) and melanophages, indicating pigment incontinence, could be appreciated in one section of the papule sample. Lichenoid lymphohistiocytic inflammatory infiltrates were also present in the dermis. We also sent a sample of perilesional skin from an erythematous papule on the left leg for direct immunoflourescence. Results showed thick shaggy deposits of fibrinogen in the basement membrane (Figure 5). All these microscopic findings were consistent with our initial working diagnosis of LP.

THERAPEUTIC APPROACHES AND OUTCOMES

We instructed the patient to apply halobetasol propionate 0.05% cream twice a day for 2 weeks on the cutaneous lesions, to take oral cetirizine 10 mg daily for two weeks for the pruritus, and to gargle with chlorhexidine gluconate mouthwash thrice a day for two weeks for the oral lesions. We advised the patient to come back to our clinic after 2 weeks for reassessment, but he was not able to comply. The patient returned to our clinic after 1 month and claimed to have applied halobetasol propionate 0.05% cream and taken cetirizine as prescribed for two weeks. He also told us that, upon noting that the number of the cutaneous lesions

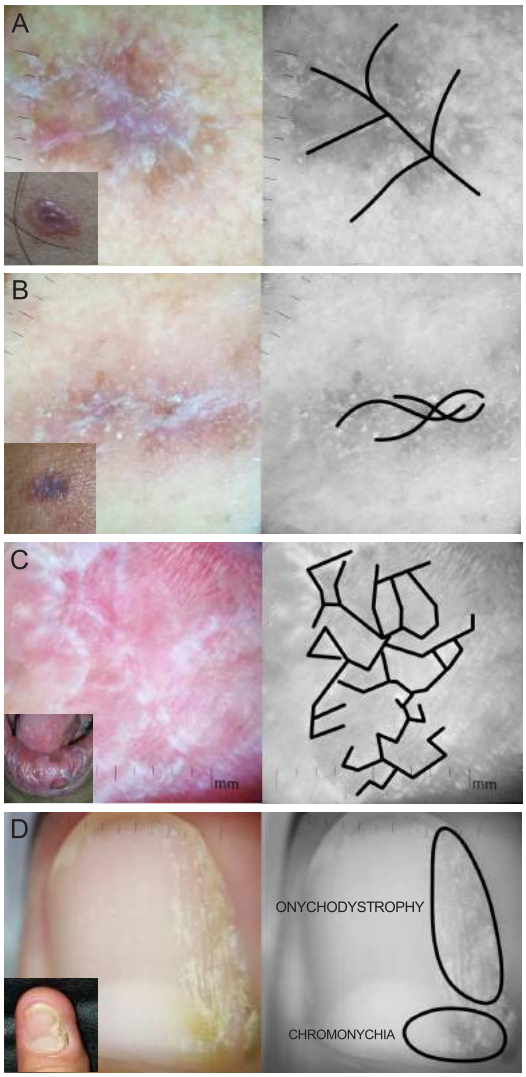

Figure 3 Dermatoscopic (colored large photos; x10) and gross (inset photos) views of the patient's lesions: an erythematous papule from the leg showing fine white lines (Wickham striae) in fern-leaf pattern (A); an atrophic macule on the forehead showing linear Wickham striae (B); a whitish reticulated plaque on the lower lip with arboriform Wickham striae (C); and a fingernail with longitudinal onychodystrophy and chromonychia (D).

decreased on the second week of treatment, he decided to apply halobetasol propionate 0.05% cream only intermittently. He also took cetirizine less frequently, and only when the pruritus was unbearable. On the other hand, when the patient noted a decrease in the size of the lesions on the buccal mucosa and lower lip after one week, he stopped the chlorhexidine gluconate mouthwash.

One month after initiating therapy, our initial approach only provided partial response. The lesions decreased in number but remained erythematous, and the patient reported that pruritus persisted, albeit with lesser intensity. The whitish plaques with erosions on the lower lip and buccal mucosa decreased in size. We started the patient on oral prednisone at 40 mg daily (0.5 mg/kg/day), then tapered every week—with dosage decrements of 5 mg—over a total period of eight weeks.

After one week of oral prednisone therapy, the cutaneous lesions on the extremities, trunk and face further decreased in number, and pruritus was reported to have decreased to a minimum, as well. The erosions and white plaques on the lower lip and buccal mucosa disappeared completely. There were no significant changes in the nail lesions. We offered intralesional steroid injection for the fingernails, but the patient refused. After eight weeks of prednisone, the cutaneous lesions on the extremities and trunk resolved completely. Itching was completely absent, as well, but the lesions on the face left residual hyperpigmentation. We instructed the patient to return to our clinic whenever new signs and symptoms would develop.

DISCUSSION

LP is characterized by two pathophysiologic mechanisms, namely—basal epidermal keratinocyte damage and lichenoid-interface lymphocytic reaction.[2] The exact cause of

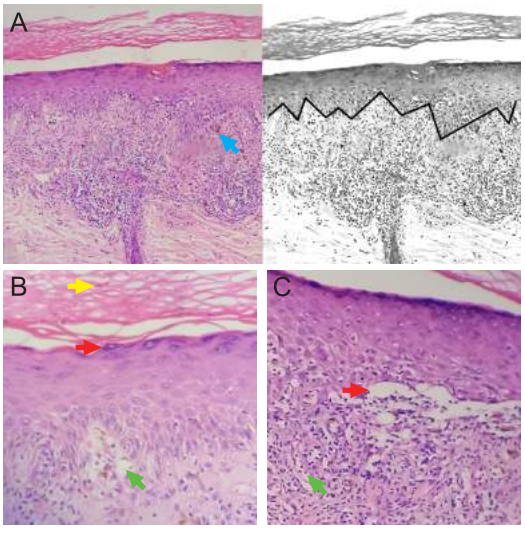

Figure 4 Photomicrograph of skin biopsy showing sawtooth configuration of rete ridges (A), melanophages (A: blue arrow) in the upper dermis, indicating pigment incontinence, hyperkeratosis (B: yellow arrow), hypergranulosis (B: red arrow), vacuolar degeneration (B: green arrow), Max Joseph cleft (C: red arrow), and lichenoid lymphohistiocytic inflammatory infiltrates (C: green arrow) (hematoxylin-eosin stain, A: x10, B and C: x40).

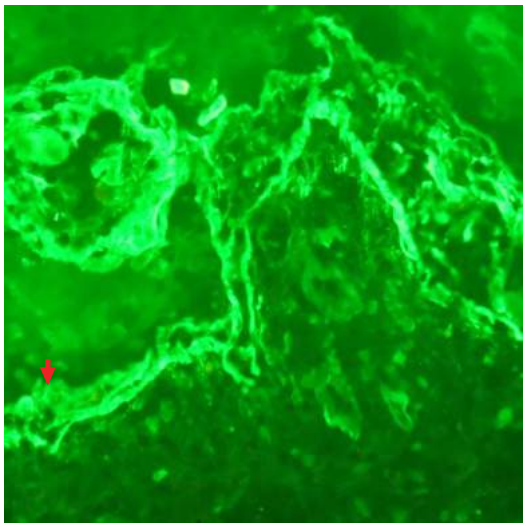

Figure 5 Direct immunofluorescence of perilesional skin (x40) showing thick shaggy deposits of fibrinogen at the basement membrane zone (red arrow).

LP is unknown, although T cell-mediated pathologic alterations involving proinflammatory and counterregulatory mechanisms function in the pathogenesis of LP.[2] These T lymphocytes are directly activated by antigen binding to keratinocyte major histocompatibility complex 1 (MHC-1) or through T-helper lymphocytes. The production of tumor necrosis factor alpha or granzyme B subsequently induces apoptosis of basal keratinocytes.[7]

The classic lesions of LP are purple, polygonal, and pruritic papules or plaques, which develop on flexural areas.[2] The lesions are usually symmetrically distributed and typically favor the wrists, ankles, shins, trunk, and sacral region, as well as the flexural surfaces of the forearms and legs, and the dorsal surfaces of the hands.[2] Lesions may also be present in other cutaneous and even mucosal sites but, interestingly, the face is usually spared in classical LP.[8] Usually, the fingernails also exhibit morphologic changes. Scalp involvement can produce scarring alopecia.[2]

Our patient, however, presented with sparse erythematous papules on the extensors, atrophic macules on the face, a large plaque with erosion in the lower lip, an erosion in the buccal mucosa, erythematous agminate papules in the penis, and fingernail changes that include onycholysis and chromonychia. The dermatoscopic and histologic features of the lesions were consistent with LP. All these made us think that the patient had atypical LP.

The clinical variants of LP differ from the classic type in terms of morphology of the lesions and sites of involvement. Atypical LPs include the atrophic, hypertrophic, vesiculobullous, actinic, annular, linear, and follicular variants, as well as LP pigmentosus and LP pigmentosus inversus.[9] In the atypical atrophic variant of LP, the usual papules of classic LP are replaced by flat violaceous macules, which are usually found in the axillae and glans penis.[10] Atrophic LP is characterized by sparse distribution of lesions.[9 11] It has also been reported that LP affects the male genitalia in 25% of cases.[2] Lesions are typically present on the glans penis and would frequently show an annular pattern,[4] but in our patient, erythematous papules with thin and whitish scales and in agminate pattern could be seen in the coronal sulcus of the penis, just below the glans.

As in our patient, LP typically manifests more in fingernails than in toenails.[2] Early manifestations of affected nails include pitting and trachyonychia, while advanced disease can produce chromonychia, lamina fragmentation, onycholysis and splinter hemorrhages.[8] Affected nails may also present with longitudinal ridges, onychorrhexis, and distal splitting. Pterygium, a pathognomonic LP nail finding, was not observed in our patient.[8]

The rarity of some LP variants and their atypical presentations make their timely diagnosis and management more difficult in the clinical setting. Viewing the lesions through an office dermatoscope often establishes the diagnosis of LP. The diagnostic accuracy of dermatoscopy is superior to clinical examination alone in the field of inflammatory dermatoses, since dermatoscopy sharply demonstrates blood vessel morphology and distribution, background color, surface scales and follicular disturbances within or around a lesion.[12] The presence of Wickham striae—or the whitish structures with reticulated, arboriform or fern-leaf pattern over papules, plaques or macules—is pathognomonic of LP.[6] In lesions on the lip or buccal mucosa, Wickham striae appear tree-like or in the form of a lacy network.[6] At the borders of the white streaks of Wickham striae, linear vessels (radial capillaries) and erythematous globules may be observed.[6] In our patient's case, the diagnosis of LP was clinched through our findings of several patterns of Wickham

striae over the lesions upon dermatoscopy.

Histopathology confirms the diagnosis of LP, because findings in all forms of LP remain consistent across the many variants of the condition.[8] Florid hyperkeratosis, wedge-shaped hypergranulosis, and irregular sawtooth acanthosis of the rete ridges are typically seen in light microscopy of LP lesions. A histologic finding of compact orthokeratosis above zones of wedge-shaped hypergranulosis manifests as the whitish linear streaks in Wickham striae that can be appreciated under the dermatoscope.[6] The dermoepidermal junction usually exhibits vacuolar degeneration, while the superficial dermis can have band-like lymphocytic infiltrates. Apoptotic keratinocytes or civatte bodies are seen in both the epithelium and upper dermis.[8] Occasionally, Max Joseph spaces, which are subepidermal clefts formed by acantholysis or hydropic degeneration of basal cells, can be appreciated under light microscopy.[13] Immunohistochemistry usually reveals thick shaggy deposits of fibrinogen in the basement membrane zone, which is characteristic of LP and occurs in 55% of patients.[2] In our patient, the histopathologic findings of hyperkeratosis, sawtooth configuration of rete ridges, hypergranulosis, vacuolar degeneration, Max Joseph cleft, and lymphohistiocytic inflammatory infiltrate, and the DIF findings of thick shaggy fibrinogen deposits in the basement membrane zone confirmed our clinical and dermatoscopic diagnosis of LP.

Because of its varying clinical presentation, LP can sometimes be confused with other inflammatory disorders like pityriasis rosea, guttate psoriasis and pityriasis lichenoides chronica. Pityriasis rosea is characterized by salmon-colored papules. The lesions are symmetrically distributed and are commonly found on the thoracic, abdominal, and back areas, as well as on the adjoining areas of the neck and extremities.[1] Oral lesions of various types, such as erythematous plaques and ulcers, have been reported to be present in pityriasis rosea.[14] Guttate psoriasis is commonly preceded by a streptococcal throat infection, something that our patient denied experiencing prior to the onset of his lesions. The lesions in guttate psoriasis appear as eruption of small papules with fine white scales, and these lesions are fairly distributed over the trunk and proximal extremities.[15] This condition is also associated with nail changes and pruritus. Pityriasis lichenoides chronica presents as crops of erythematous papules with fine scales that spontaneously regress over weeks to months.[2] Lesions are scattered but discrete, and are usually distributed on the trunk, buttocks, and proximal extremities.[4]

Dermatoscopy can be very helpful in narrowing down the differential diagnosis of papulosquamous lesions. Under the dermatoscope, the lesion of pityriasis rosea will have a central mixed vascular pattern and a peripheral collarette of scales.[16] In guttate psoriasis a dermatoscopic pattern of diffuse dotted vessels can be appreciated.[17] Dermatoscopy of pityriasis lichenoides chronica lesions will show irregular linear vessels.[17] The presence of Wickham striae is the distinguishing dermatoscopic feature that differentiates LP from other papulosquamous conditions.[18-20]

LP has also been linked with liver diseases such as autoimmune chronic active hepatitis, primary biliary cirrhosis and postviral chronic active hepatitis.[2] Hepatitis C infection has been found to be a trigger event in 16 to 29% of patients with LP.[21] Based on epidemiological studies, oral LP has an estimated malignant transformation rate of 0.27% yearly.[22] However, there has been controversy on whether oral LP does indeed lead to malignancy.[23] Existing studies on this are inconsistent in terms of the criteria used to diagnose oral LP and the subsequent malignancy, risk factors investigated for malignant transformation, and the management approach to patients with oral LP to ensure early diagnosis of malignancy.[23]

Since the severity of symptoms, number and distribution of lesions, and treatment response of patients with LP vary greatly, the treatment approach is often individualized. Majority of patients with cutaneous LP undergo spontaneous remission after one year.[24] Early or localized lesions of patients with cutaneous LP usually respond to potent topical steroids, such as clobetasol propionate, applied thinly on the lesions twice daily for two to three weeks.[24] Generalized cutaneous LP often needs systemic therapy with oral prednisone 30-60 mg daily for at least four weeks with appropriate tapering.[24] Systemic steroids may help alleviate symptoms, but therapy may not affect the total duration of the disease.[24] Topical medium-potency corticosteroids (e.g., triamcinolone acetonide), high-potency

fluorinated corticosteroids (e.g., fluocinolone acetonide, disodium betamethasone phosphate), and—more recently—superpotent halogenated corticosteroids (e.g., clobetasol with adhesive base) are considered first line therapy for oral LP.[25] Oral candidiasis is a complication during therapy, hence chlorhexidine gluconate mouthwash is recommended during the course of treatment.[1] Injection of intralesional triamcinolone acetonide at the proximal nail fold every 4 weeks is recommended for nail lesions.[2]

Relapse rate for LP lesions within 3 years after therapy can be as high as 25%.[26] Compared to cutaneous lesions, mucosal membrane lesions may be more resistant to treatment.[4] Nail lesions are difficult to treat, and relapse can be expected even with intralesional corticosteroid administration.[27]

In summary, a 53-year-old male with sparse cutaneous papules and macules, and mucosal plaques with erosions of 6 months' duration came to us. While we considered several papulosquamous dermatoses, our physical examination findings and dermatoscopic findings taken together pointed to atypical LP as the diagnosis, and we were able to start the patient's therapy on initial consultation. The histologic findings, which came later, was able to confirm our initial diagnosis. Our patient's condition improved with initial superpotent topical corticosteroids and chlorhexidine gluconate mouthwash, followed by an 8-week course of oral corticosteroids. Dermatoscopy is a non-invasive procedure that is helpful in the assessment of inflammatory dermatoses such as LP. The use of a clinic dermatoscope and identification of the characteristic Wickham striae of LP led to the early diagnosis and timely management of our patient's condition, and we did not have to wait for histopathologic confirmation to initiate therapy.

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SPMC JHCS

INFOGRAPHIC

Health care services in Davao Province in 1917

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During the period of the Insular Government of the Philippine Islands (1901-1935), the Governor General (originally called Civil Governor)[1] was the chief executive of the islands.[2] Francis Burton Harrison was the Governor General in 1917,[3] and the directors of the different administrative bureaus of the government, including the Bureau of Health (BOH), reported to him. In the same year, the Director of Health was Dr JD Long, and his Assistant Director was Dr Vicente de Jesus.[4] At that time, the Bureau of Health was divided into different administrative divisions, one of which was the Division of Mindanao and Sulu,[5] headed by the Chief-of-Division Dr Jacobo Fajardo.

The geographical scope of the BOH Division of Mindanao and Sulu was comprised of the Christian provinces of Misamis and Surigao, as well as the "seven special provinces inhabited by Mohammedan and pagan populations"[4] under the Department of Mindanao and Sulu.[6] One of these non-Christian provinces was Davao Province, or the present-day Davao Region composed of Davao del Norte, Davao del Sur, Davao Oriental, Davao Occidental, and Compostela Valley. Within the division, District Health Officers (in charge of provincial health concerns) and Heads of Dispensaries reported to the Chief-of-Division.[5]

The most common recorded diseases in Davao Province during 1917 were malaria (2,093 cases), skin diseases (528 cases), infected wounds (412 cases), and intestinal parasites (282 cases). Other diseases reported during the year included dysentery (178 cases), typhoid fever (55 cases), and gonococcal infection (34 cases). The first case of smallpox in Davao Province was diagnosed in 1917 in a girl who came from Cebu.[4]

Many of the foregoing diseases were diagnosed, treated, and reported by the different health care facilities within Davao Province. Dispensaries provided outpatient medical care and public education about diseases and their prevention.[7] In 1917, a total of 20 dispensaries[4] were operating in 11 areas in the province, namely—Caraga, Cateel, Saug, Manay, Bunawan, Guianga, La Union, Madaum, Moncayo, Samal, and Malita.[8] During the same year, the sickward in Mati was the only government facility in the province that treated patients needing emergency care and that accommodated patients who were about to be transferred to a hospital.[9]

A private missionary hospital run by American medical staff started operating in Davao since 1908.[10] As the only hospital in the province at that time, the facility did well in addressing the medical needs of locals and the Japanese settlers in the province. By 1917, however, the hospital staff could hardly keep up with the growing number of patients. Only seriously ill patients could be admitted, and hospital staff had to turn away many patients for lack of beds.[11]

There was no operational government-owned hospital in Davao at the start of 1917,[4 11] but by the end of the year, one of the many acts that eventually instituted a public hospital in the province was passed by the Philippine Legislature.[12]

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HEALTH CARE *in* DAVAO PROVINCE

1917

HEALTH CARE ORGANIZATIONAL CHART

- **GOVERNOR GENERAL** — *INSULAR GOVERNMENT OF THE PHILIPPINE ISLANDS*
- **DIRECTOR OF HEALTH** — *BUREAU OF HEALTH*
- **ASSISTANT DIRECTOR OF HEALTH** — *BUREAU OF HEALTH*
- **CHIEF OF DIVISION** — *DIVISION OF MINDANAO AND SULU*
  - **DISTRICT HEALTH OFFICER** — *DAVAO PROVINCE*
  - **HEAD OF DISPENSARIES** — *DAVAO PROVINCE*

HOSPITAL

- A PRIVATE MISSIONARY HOSPITAL HAS BEEN OPERATING IN DAVAO SINCE 1908
- MOST OF THE PATIENTS IN 1917 WERE LOCALS AND JAPANESE SETTLERS IN THE PROVINCE

SICKWARD

- TREATED PATIENTS NEEDING EMERGENCY CARE AND ADMITTED PATIENTS WHO WERE ABOUT TO BE TRANSFERRED TO A HOSPITAL
- ONE SICKWARD WAS OPERATING IN MATI IN 1917

DISPENSARIES

- PROVIDED OUTPATIENT MEDICAL CARE
- GAVE INSTRUCTIONS TO THE PUBLIC ON PROPER HYGIENE, SANITATION AND PREVENTION OF DISEASES
- 20 DISPENSARIES WERE OPERATING IN 11 AREAS IN DAVAO PROVINCE IN 1917

MOST COMMON DISEASES IN DAVAO

MALARIA	2093 CASES
SKIN DISEASES	528 CASES
INFECTED WOUNDS	412 CASES
INTESTINAL PARASITES	282 CASES

THE FIRST REPORTED CASE OF SMALL POX IN DAVAO WAS DIAGNOSED IN 1917 IN A GIRL FROM CEBU

OTHER REPORTED DISEASES IN 1917:

- DYSENTERY — 178 CASES
- TYPHOID FEVER — 55 CASES
- GONOCOCCAL INFECTION — 34 CASES

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SPMC JHCS

INFOGRAPHIC

Top causes of mortality and morbidity in the Philippines, 1960-2013

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Morbidity and mortality reports inform health care policies, programs, and reforms.[1-3] Success in the implementation of health services is often gauged from incidence patterns of preventable diseases and deaths over time. In this infographic, we used data from the Philippine Department of Health to explore the trends in the annual top ten causes of morbidities and deaths in the country from 1960 to 2013.[4-54]

Mortaility trends

Pneumonia and tuberculosis were the two most common causes of death from 1960 up to late 1970s. Pneumonia was the number one leading cause of mortality up to the end of the 1980s. Tuberculosis started to take a backseat from 1979 and had since declined further, albeit slowly, ending on the eighth spot in 2012 and 2013. Throughout the 54-year coverage of this report, tuberculosis had consistently been one of the ten leading causes of mortality. Diseases of the heart started to rise as the second leading cause of death in 1979, and from 1990 onwards, it became the number one cause of death. From 1993 to 2013, diseases of the vascular system became the second leading cause of mortality. Measles appeared in the top ten leading causes of mortality from 1976 to 1990. After 1990, measles continued to be one of the top ten causes of morbidity for a few years, but it ceased to be one of the top ten causes of mortality. Gastroenteritis and colitis/diarrhea started as the third leading cause of mortality in 1960, moved to a lower spot in the 1970s and continued to decline from early 1980s up to early 1990s. From 1995 onwards, while diarrhea continued to be one of the leading causes of morbidity, it ceased to be among the ten leading causes of mortality.

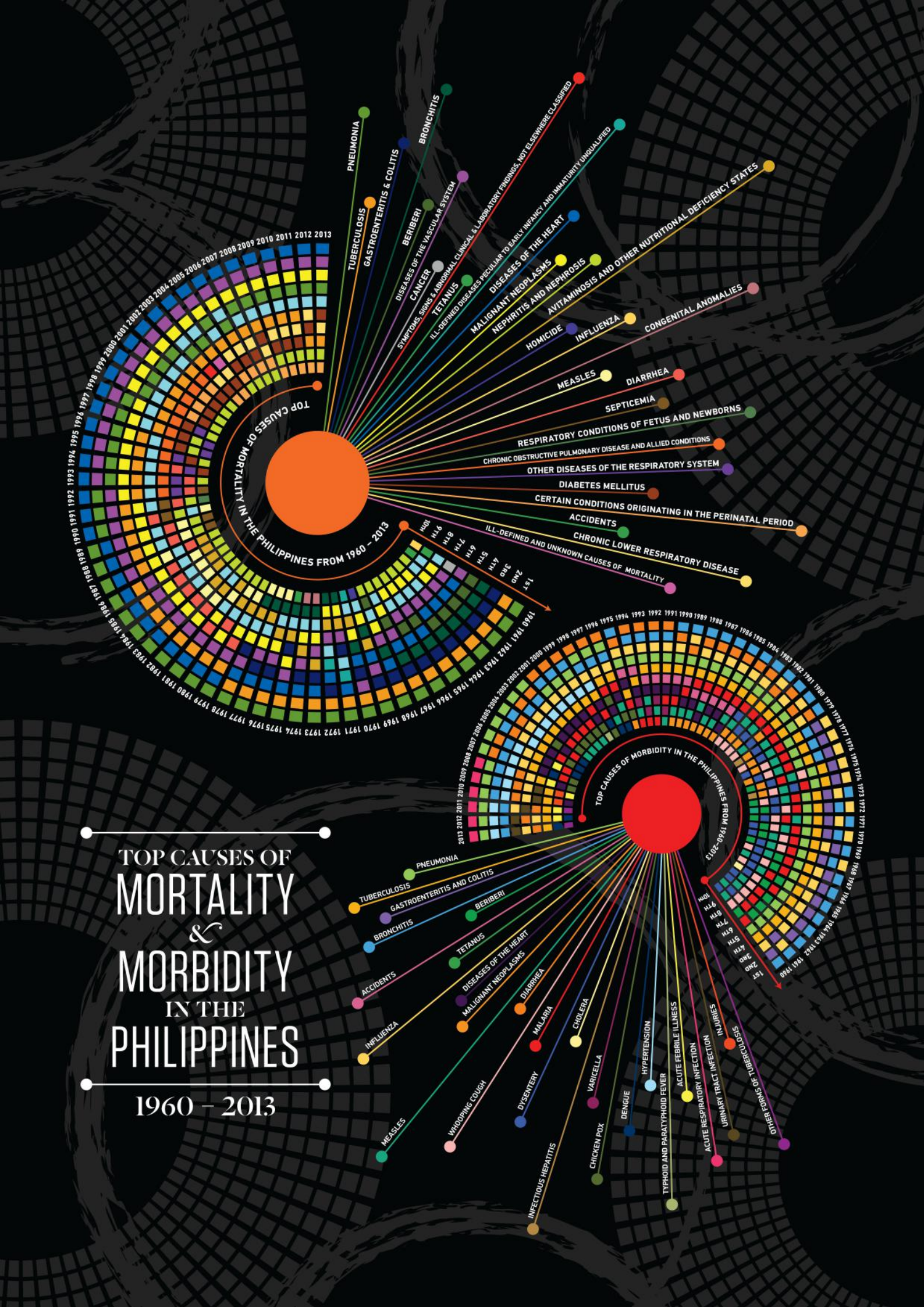
Morbidity trends

Bronchitis, gastroenteritis and colitis/diarrhea, and influenza were consistently the top three causes of morbidity from 1960 to 1995. From 1996 to 2007, diarrhea and bronchitis remained within the top three leading causes of morbidity, while pneumonia replaced the original spot of influenza. Beginning in the late 1990s, hypertension started to appear among the ten leading causes of morbidity. Hypertension started as the fifth most common cause of morbidity from 1998 to 2005, ranked fourth from 2006 to 2010, and ranked third from 2011 onwards. Tuberculosis and malaria had consistently been in the top ten causes of morbidity from 1960 to the late 2000s. Tuberculosis continued to be in the list, ending in the eighth spot from 2009 to 2013. Malaria, however, disappeared from the top ten list from 2008 onwards. Whooping cough had also been in the the top ten causes of morbidity from the 1960s, disappeared in the list in 1979, and reappeared shortly from 1980 to 1983 as the tenth leading cause of morbidity. Measles, although not as consistent as tuberculosis, had been one of the top ten causes of morbidity from the 1960s up to the early 2000s.

Possible links to lifestyle and public health strategies

The rise in incidence of heart diseases and hypertension parallels the increase in popularity of unhealthy diets, physical inactivity and smoking among Filipinos.[55-58] Food and Agriculture Organization (FAO) of the United Nations reported in early 2000s that, from 1970 to 2000, Filipinos had increased per capita dietary energy supply. Moreover, the percentage contribution of starchy foods, cereals, and vegetables to the total energy supply decreased, while the percentage contribution of oils, fats, animal meat, animal products, and sugar to the total energy supply increased over the time period. The FAO report added that the modernization of agriculture, and the increase in use of labor-saving technologies have contributed to decrease in energy expenditure.[55]

Public health strategies to reduce morbidity and mortality from infectious diseases can—at least partly—explain the patterns of common diseases in the Philippines over the last 54 years. The establishment of the National TB Control Program (NTP) in 1978[59] is possibly responsible for the decline in mortality from tuberculosis starting 1979. Likewise, the launch


TOP CAUSES OF MORTALITY IN THE PHILIPPINES FROM 1960 – 2013
PNEUMONIA
TUBERCULOSIS
GASTROENTERITIS & COLITIS
BRONCHITIS
BERIBERI
DISEASES OF THE VASCULAR SYSTEM
CANCER
SYMPTOMS, SIGNS & ABNORMAL CLINICAL & LABORATORY FINDINGS, NOT ELSEWHERE CLASSIFIED
TETANUS
ILL-DEFINED DISEASES PECULIAR TO EARLY INFANCY AND IMMATURITY/UNQUALIFIED
MALIGNANT NEOPLASMS
DISEASES OF THE HEART
NEPHRITIS AND NEPHROSIS
AVITAMINOSIS AND OTHER NUTRITIONAL DEFICIENCY STATES
HOMICIDE
INFLUENZA
CONGENITAL ANOMALIES
MEASLES
DIARRHEA
SEPTICEMIA
RESPIRATORY CONDITIONS OF FETUS AND NEWBORNS
CHRONIC OBSTRUCTIVE PULMONARY DISEASE AND ALLIED CONDITIONS
OTHER DISEASES OF THE RESPIRATORY SYSTEM
DIABETES MELLITUS
CERTAIN CONDITIONS ORIGINATING IN THE PERINATAL PERIOD
ACCIDENTS
CHRONIC LOWER RESPIRATORY DISEASE
ILL-DEFINED AND UNKNOWN CAUSES OF MORTALITY
1ST
2ND
3RD
4TH
5TH
6TH
7TH
8TH
9TH
10TH
1960 1961 1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013
TOP CAUSES OF MORBIDITY IN THE PHILIPPINES FROM 1960-2013
PNEUMONIA
TUBERCULOSIS
GASTROENTERITIS AND COLITIS
BERIBERI
BRONCHITIS
TETANUS
ACCIDENTS
DISEASES OF THE HEART
MALIGNANT NEOPLASMS
DIARRHEA
INFLUENZA
MALARIA
CHOLERA
HYPERTENSION
VARICELLA
ACUTE FEBRILE ILLNESS
DENGUE
INJURIES
CHICKEN POX
URINARY TRACT INFECTION
OTHER FORMS OF TUBERCULOSIS
TYPHOID AND PARATYPHOID FEVER
ACUTE RESPIRATORY INFECTION
INFECTIOUS HEPATITIS
DYSENTERY
WHOOPING COUGH
MEASLES
1960 1961 1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013
TOP CAUSES OF
MORTALITY
&
MORBIDITY
IN THE
PHILIPPINES
1960 – 2013

of the Control of Diarrheal Diseases (CDD) in October 1980 possibly helped reduce deaths due to gastroenteritis and colitis/diarrhea in the succeeding years.[60] The expanded program on immunization (EPI), which was established in 1976,[61] was intended to reduce vaccine-preventable diseases including tuberculosis, poliomyelitis, diphtheria, tetanus, whooping cough, and measles. While morbidity from whooping cough already started to decline in the early 1980s, mortality from measles dropped only at the start of the 1990s, and morbidity from measles only started to wane in the early 2000s. In 1997, a malaria elimination initiative was launched with the aim of a malaria-free Philippines by 2020. Morbidity from malaria, however, only started to decrease in the late 2000s. By 2013, 27 out of 80 provinces in the Philippines were declared malaria-free.[62]

Summary

This brief exploration of mortality and morbidity trends in the Philippines has demonstrated that public health initiatives do keep at least some important infectious diseases in check. Over the past half a century, non-communicable diseases have gradually figured in the top three leading causes of mortality and morbidity, replacing spots once occupied by infectious diseases.

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SPMC JHCS

INFOGRAPHIC

Southern Philippines Medical Center in 16 historical documents

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History is a significant part of an institution's identity. Piecing together a detailed narrative of an institution's past requires looking for proof from different possible sources and weaving all the information gathered to create a coherent story. Today, as the Southern Philippines Medical Center (SPMC) celebrates its 100th year as a health care institution, many versions of its history exist.[1-5] Despite successfully portraying SPMC's rich past, these existing accounts slightly vary from one version to another. To contribute to the growing collection of SPMC's historical elements, we are presenting legislations and official government documents that refer to this century-old hospital in Davao Region.

The source documents below offer an as-close-as-possible and verifiable view of what transpired in the past. Gathering documents related to SPMC was not a simple task, since certain events (e.g., World War II, transfer of hospital site, administrative changes, etc.) may have destroyed some of the primary source documents. Our search for source documents was reasonably thorough. We looked for archived legislations and official monthly, quarterly or annual reports of government offices from several online repositories. We searched the issuance database of the Department of Health (DOH), the archived local issuances in the SPMC Administrative Office, and the files of several offices in SPMC. We went through some historical documents from private and government-owned libraries and museums in Davao City. We also interviewed several retiring employees, retirees and relatives of past employees of SPMC who may have access or who could point us to relevant documents.

Most of the legislations, issuances and official reports of government offices included in this listing were downloaded from online sources. The Davao City Library gave us access to an important Mayor's Report in the 1950s, and the Sangguniang Panlungsod Library of Archives in Davao City provided us a copy of an office memorandum from the mayor of Davao City on the inauguration of one of the buildings of SPMC. We could not retrieve many online or physical documents that we have initially identified from several articles written about SPMC. They were probably either missing from the archives or simply disposed of by offices that did not find them relevant. The biggest impediment that systematically precluded further exploration of significant historical documents related to SPMC was the fire that razed the 92-year-old original concrete hospital building in J.P. Laurel Avenue, Davao City in 2013. The fire burned all physical historical records kept in a storage room located in the main hospital building.

The 16 documents presented in this article are listed in chronological order and classified under the several names that SPMC has been known for within the past century. We listed the document titles exactly as they appeared in their respective sources along with the respective dates of reporting or approval. Short descriptions of the contents of the documents are also provided.

DAVAO HOSPITAL

1. An Act appropriating funds for the necessary expenses of the Government of the Philippine Islands during the fiscal year ending December thirty-first, nineteen hundred and eighteen, and for other purposes, Act No. 2727
Approved: December 20, 1917
To date, the oldest document found regarding Southern Philippines Medical Center's inception is a copy of a 1917 act passed by the Philippine Legislature, appropriating an amount for the "purchase and acquisition of equipment... for the Davao Hospital..."[6]

2. An Act making appropriations for Public Works, Act No. 2736
Approved: February 15, 1918
In 1918, Act No. 2736 was passed for the appropriation of the "purchase, survey and registration of land, improvement of the grounds, and construction and improvement, and

SOUTHERN PHILIPPINES MEDICAL CENTER

IN 16 HISTORICAL DOCUMENTS

ACT NO. 2727
DECEMBER 20, 1917

An Act appropriating funds for the necessary expenses of the Government of the Philippine Islands during the fiscal year ending December thirty-first, nineteen hundred and eighteen, and for other purposes

- *Provided funds for equipment and furniture for Davao Hospital*

ACT NO. 2736
FEBRUARY 15, 1918

An Act making appropriations for Public Works

- *Provided funds for the construction of hospitals in non-Christian provinces*

REPORT OF THE GOVERNOR GENERAL OF THE PHILIPPINE ISLANDS TO THE SECRETARY OF WAR FOR 1918
MARCH 15, 1919

- *Mentioned that a temporary wooden hospital pavilion was constructed in Davao by the Bureau of Public Works*

ACT NO. 2785
DECEMBER 21, 1918

An Act appropriating funds for the necessary expenses of the Government of the Philippine Islands during the fiscal year ending December thirty-first nineteen hundred and nineteen, and for other purposes

- *Stipulated the budget for personnel services and operating expenses in Davao Hospital*

REPORT OF THE GOVERNOR GENERAL OF THE PHILIPPINE ISLANDS TO THE SECRETARY OF WAR FOR 1919
FEBRUARY 19, 1920

- *Declared that the construction of the hospital building in Davao started in May 1919 and that the front wing was 80% complete by the end of the year*

DAVAO HOSPITAL*

REPORT OF THE PHILIPPINE HEALTH SERVICE FOR 1919
OCTOBER 7, 1920

- *Reported that the permanent concrete hospital building in Davao was nearly completed*

REPORT OF THE PHILIPPINE HEALTH SERVICE FOR 1920
JULY 5, 1921

- *One of the oldest documents that mentioned 'Davao Public Hospital'*

DAVAO PUBLIC HOSPITAL

REPORT OF THE SECRETARY OF THE INTERIOR FOR 1921
APRIL 25, 1922

- *Announced the inauguration of the public hospital in Davao on November 28, 1921*

ANNUAL REPORT OF THE SECRETARY OF PUBLIC INSTRUCTION FOR 1932-1933
JANUARY 25, 1933

- *Mentioned that a private patients' pavilion was constructed in Davao Public Hospital*

REPORT OF THE MAYOR OF DAVAO CITY FOR 1950
JANUARY 6, 1950

- *Reported the damages sustained by the buildings of 'Davao General Hospital' during bombings in World War II*

DAVAO GENERAL HOSPITAL

REPUBLIC ACT NO. 1859
JUNE 22, 1957

An Act to establish a Regional Medical and Training Center in Davao City and appropriating funds therefor

DAVAO REGIONAL MEDICAL AND TRAINING CENTER

MEMORANDUM TO ALL CITY OFFICIALS, CHIEFS OF OFFICES AND/OR DEPARTMENTS IN THE CITY OF DAVAO
DECEMBER 10, 1964

- *Sent by the Office of the Mayor of Davao City to different government officials in Davao City to inform them about the inauguration of the Davao Regional Medical (and) Training Center on December 12, 1964*

BATAS PAMBANSA BILANG 319
NOVEMBER 14, 1982

An Act changing the name of the Davao Regional Medical and Training Center in the City of Davao to Davao Medical Center

DAVAO MEDICAL CENTER

MINISTRY OF HEALTH ADMINISTRATIVE ORDER NO. 12
DECEMBER 2, 1986

Transfer of the Nervous Disease Pavillion from Davao Medical Center to the Mental Hospital and for other purposes

REPUBLIC ACT NO. 7210
MARCH 6, 1992

An Act increasing the bed capacity of the Davao General Hospital from three hundred fifty (350) to four hundred (400) beds, and appropriating funds therefor

REPUBLIC ACT NO. 9792
NOVEMBER 19, 2009

An Act changing the name of the Davao Medical Center in Davao City to the Southern Philippines Medical Center, increasing its bed capacity from six hundred (600) to one thousand two hundred (1,200), upgrading its service facilities and professional health care, authorizing the increase of its medical personnel and appropriating funds therefor

SOUTHERN PHILIPPINES MEDICAL CENTER

* *Not an accurate representation of the original building.*

maintenance of the hospitals in non-Christian and special provinces."[7] Act No. 2408, a previous legislation passed in 1914, classified Davao Province as one of the non-Christian provinces in Mindanao.[8] By virtue of Act No. 2408, funds for the construction of a hospital in Davao Province was provided for by the government through Act No. 2736.

3. An Act appropriating funds for the necessary expenses of the Government of the Philippine Islands during the fiscal year ending December thirty-first nineteen hundred and nineteen, and for other purposes, Act No. 2785
Approved: December 21, 1918
Act 2785 was a legislation that stipulated the budget for personnel services and operating expenses in Davao Hospital. For the year 1919, salaries and wages were appropriated for one resident physician, one superintendent and property clerk, three nurses, four ward attendants, one cook, one assistant cook, and five laborers. An amount was also appropriated for "(c)onsumption of supplies and materials, including laundry, medical and surgical supplies for dispensaries, hospital, the Mati sickward, and for the subsistence of officer, employees, and patients of the Davao hospital."[9]

4. Report of the Department of Mindanao and Sulu. In: Report of the Governor General of the Philippine Islands to the Secretary of War 1918 (January 1, 1918 to December 31, 1918)
Reported: March 15, 1919
The report of the Governor General for the year 1918 mentioned that a temporary wooden hospital pavilion was constructed in Davao by the Bureau of Public Works to accommodate patients until a concrete hospital building could be used. At this time, the government had obtained and cleared a site for the permanent hospital building and requisitioned part of the construction materials.[10]

5. Report of the Department of Mindanao and Sulu. In: Report of the Governor General of the Philippine Islands to the Secretary of War 1919 (January 1, 1919 to December 31, 1919)
Reported: February 19, 1920
The report of the Governor of Mindanao and Sulu for 1919 declared that the construction of the hospital building in Davao started in May 1919 and that the front wing was 80% complete by the end of the year.[11]

6. Report of the Division of Mindanao and Sulu. In: Report of the Philippine Health Service for the Fiscal Year from January 1 to December 31, 1919
Reported: October 7, 1920
The report of the Philippine Health Service for the year 1919 described the state of the construction of the government hospital in Davao. At the time of reporting, the "permanent concrete hospital building" was nearly completed, but because of the growing number of patients, the sickward for laborers of the Bureau of Public Works was utilized as a temporary public hospital. The temporary hospital was provided with necessary equipment and a laboratory, and was operated by the Philippine Health Service. The report also mentioned that the concrete building that was under construction could accommodate "as many as 50 patients."[12]

DAVAO PUBLIC HOSPITAL

7. Report of the Division of Mindanao and Sulu. In: Report of the Philippine Health Service for the Fiscal Year from January 1 to December 31, 1920
Reported: July 5, 1921
One of the oldest documents that mentioned the name 'Davao Public Hospital' was the Philippine Health Service annual report for the year 1920. The document reported that, despite the great need for more personnel in the existing hospital, the hospital staff have performed major operations in the "very inadequate" operating room and successfully treated 16 cases of typhoid fever with "intravenous injection of an emulsion of atenuated [*sic*] living typhoid bacilli." A short portion of the document reported that the new hospital building would have a 50-bed capacity and that its construction was estimated to be finished by June 1921. Another part of the document mentioned that, on 22 August 1920, Dr. Simeon Macasaet was appointed Resident Physician of Davao Public Hospital.[13]

8. Report of the Secretary of the Interior. In: Report of the Governor General of the Philippine Islands (For the Fiscal Year Ended December 31, 1921)
Reported: April 25, 1922
This report by the Secretary of the Interior announced the completion of the construction of the public hospital in Davao during the year. The hospital building was described as "one of the modern hospitals in Mindanao," which also features a dispensary, a nurses' dormitory, a doctors' quarters, and a park. The new hospital was inaugurated on 28 November 1921.[14]

9. Annual report of the Secretary of Public Instruction. In: Report of the Governor General of the Philippine Islands for the Period February 29,1932 - February 16, 1933
Reported: January 25, 1933
The report of the Secretary of Public Instruction for 1932 mentioned that a private patients' pavilion was constructed in Davao Public Hospital during that year.[15]

DAVAO GENERAL HOSPITAL

10. Report of the District and City Engineer of Davao City. In: Annual Report of the Mayor of Davao City (1950)
Reported: January 6, 1950
In 1950, the Mayor of Davao City reported the damages sustained by the buildings of Davao General Hospital during bombings in World War II. The report also described the structural repairs that had to be done by the US Medical Corps and the District Engineer's Office. By this time, the reconstruction of the main building and the Nurses' Home had been completed, while that of the Private Patients Pavilion was nearing completion. A new x-ray building had also been erected. The report also briefly mentioned the hospital expansion plans of Dr Manuel Babao, the Chief of Hospital at that time.[16]

DAVAO REGIONAL MEDICAL AND TRAINING CENTER

11. An Act to establish a Regional Medical and Training Center in Davao City and appropriating funds therefor, Republic Act No. 1859
Approved: June 22, 1957
This act, which was approved in 1957, mandated the establishment of Davao Regional Medical and Training Center and appropriated funds for the construction of its buildings. The planned 350-bed-capacity hospital was also intended to become the referral center that would provide special medical services to patients in Mindanao and Sulu. This act also stated that the Secretary of Health would have the control and supervision of the hospital.[17]

12. Memorandum to all City Officials, Chiefs of Offices and/or Departments in the City of Davao
Date issued: December 10, 1964
This memorandum from the Office of the Mayor of Davao City dated 10 December 1964 was sent to different officials and heads of government offices in Davao City to inform them about the inauguration of the Davao Regional Medical (and) Training Center on 12 December 1964. The memorandum also pointed out that the event is significant since the hospital is expected to provide specialized medical services to residents of Davao City.[18]

DAVAO MEDICAL CENTER

13. An Act changing the name of the Davao Regional Medical and Training Center in the City of Davao to Davao Medical Center, Batas Pambansa Bilang 319 (1982)
Approved: November 14, 1982
This is a brief legislation that, as the title suggests, mandated the renaming of Davao Regional Medical and Training Center to Davao Medical Center.[19]

14. Transfer of the Nervous Disease Pavillion from Davao Medical Center to the Mental Hospital and for other purposes, Ministry of Health Administrative Order No. 12 series of 1986
Approved: December 2, 1986
This issuance from the Ministry of Health ordered the transfer of the personnel, equipment

and facilities of the Nervous Diseases Pavilion (NDP) of Davao Medical Center to "the Mental Hospital." The order was issued to consolidate "matter(s) relative to mental health" into one agency and to allow Davao Medical Center to convert the NDP into an outpatient care facility.[20]

15. An Act increasing the bed capacity of the Davao General Hospital from three hundred fifty (350) to four hundred (400) beds, and appropriating funds therefore, Republic Act No. 7210 (1992)
Approved: March 6, 1992
This legislation authorized the increase in the bed capacity of the hospital from 350 to 400. This legislation also specified to charge the amount involved in carrying out the mandated increase in bed capacity against the country's current and future annual General Appropriations Acts.[21]

SOUTHERN PHILIPPINES MEDICAL CENTER

16. An Act changing the name of the Davao Medical Center in Davao City to the Southern Philippines Medical Center, increasing its bed capacity from six hundred (600) to one thousand two hundred (1,200), upgrading its service facilities and professional health care, authorizing the increase of its medical personnel and appropriating funds therefor, Republic Act No. 9792 (2009)
Approved: November 19, 2009
Senate Bill No. 3135[22] for Republic Act No. 9792[23]was read during the sessions of the Fourteenth Congress of the Republic of the Philippines. The bill explained that the name 'Davao Medical Center' connotes health care services for residents of Davao Region only. Since it was provided for in Republic Act No. 1859 that Davao Regional Medical and Training Center should be the referral center for the entire Mindanao and Sulu, "it is highly desirable that (the hospital) banners Southern Philippines in its name."[17] This senate bill also pointed out the increasing hospital occupancy rate that necessitates an increase in its bed capacity.[22] In November 2009 the hospital name 'Davao Medical Center' was changed to Southern Philippines Medical Center through Republic Act No. 9792. The legislation also provided for the increase in the hospital's authorized bed capacity from 600 to 1200 beds.[23] In 2016, the Secretary of Health issued a set of rules and regulations on the hospital's services, human resources, equipment, infrastructure, systems development, and quality management to ensure the implementation of Republic Act No. 9792.[24]

Reading the foregoing documents will reveal that, when taken all together, they do not account for all the significant events in SPMC's history. For instance, we could not find documents that established the renaming of 'Davao Hospital' to 'Davao Public Hospital (DPH),' or the name change from 'Davao Public Hospital' to 'Davao General Hospital (DGH).' Likewise, we do not have available accounts of the events that transpired in the hospital during World War II from 1939 to 1945, or during the Japanese occupation of the Philippines from 1942 to 1945.

We know for a fact that, subsequent to the approval of Republic Act No. 1859, a new hospital building was constructed in Dumanlas Road, 3 kilometers from the site of the original hospital building in JP Laurel Avenue, Davao City. We also know that, upon completion of construction of the hospital building in Dumanlas Road, the services of DGH were transferred from the original hospital building site in JP Laurel Avenue to the new Davao Regional Medical and Training Center (DRMTC) building. However, we could not find documents that pertain to any of these events.

We can infer from Ministry of Health Administrative Order No. 12 series of 1986 above that, for some time, a Nervous Disease Pavilion in DMC functioned as the hospital's psychiatric department prior to the transfer of its personnel, equipment and facilities to "the Mental Hospital."[20] We also know that the original hospital building in JP Laurel Avenue became Davao Mental Hospital after DGH was transferred to the new building in Dumanlas Road, that Davao Mental Hospital operated independently from DGH/DRMTC for a while, and that Davao Mental Hospital eventually became—and still is—the psychiatric department of DMC/SPMC. However, we have not retrieved primary source documents that pertain to the changes in supervision and control of the hospital's psychiatry department.

The implementing rules and regulations of RA 9792 mandated that "structural

reorganization with additional services shall be established based on the Hospital Development Plan."[24] The present hospital administration, with Dr. Leopoldo J. Vega as Medical Center Chief, is working with DOH to implement this mandate. Structures in health care—buildings, facilities, equipment, programs, health care staff and their organization, and fiscal organization—are the settings and instrumentalities that enable appropriate processes and favorable outcomes of health care to happen.[25] At the very least, what we have above is a list of documents about the structures that have facilitated the delivery of health care services in SPMC during the last century.

We have just presented several important legislations and government documents that help describe significant events in the history of SPMC. The evolution of SPMC as a provider of hospital-based health care continues, and we have these pieces of evidence to remind us of SPMC's remarkable past.

Acknowledgments
We would like to thank: Ms Elizabeth Barriga for sharing her historical files relating to Davao Mental Hospital (DMH); Mr Ricardo Justol and Ms Elaine Mombay for granting us access to their archived files; the Davao City Library and Sangguniang Panlungsod Library of Archives in Davao City for providing us access to their materials on Davao History; Ms Enrica "Baby" Babao for her efforts in producing a history of Southern Philippines Medical Center (SPMC); Mr Renato Celeridad for sharing his knowledge on the history of Davao Medical Center (DMC); Ms Nancy Arceo, Ms Imelda Mallorca and Dr Willie N Figueroa for their insights on the shared history of DMH and DMC; Ms Adelina Macaraeg and Ms Rebecca Ynion for their assistance in retrieving documents relevant to this infographic; and Mr Clarence Xlasi Ladrero for creating the infographic.

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None declared

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SPMC JHCS

REPUBLICATION

Report of a case of bronchopneumonia without cough secondary to influenza: unabridged republication

Juan Belisario (1894-1963)

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EDITORS' NOTE

In this issue of the *SPMC Journal of Health Care Services*, we reproduce an unabridged version of the article "Report of a case of bronchopneumonia without cough secondary to influenza" by Juan Belisario (1894-1963), who was a resident physician in Davao Public Hospital (the present-day SPMC) in 1927. We obtained a digitized copy of the article from a compilation in Internet Archive (www.archive.org), an Internet-based non-profit library. This online library collects published works—including publicly available books and other printed texts—and makes them available in digital formats.

The reproduction of this 90-year-old article is a secondary publication. This case report was first published in a publicly available Philippine government report—the Monthly Bulletin of the Philippine Health Service Vol VII No 12, pp. 687-690, December 1927. In order to preserve the original layout and typesetting of the article, we reproduce the entire article here as four images saved in JPG format from the PDF file as uploaded by the University of Michigan, the digitizing sponsor and contributor of the archived document.

Respect for intellectual property is one value that our publication upholds, and our editorial staff took due diligence to ensure that no copyright infringement has occurred in the republication of this article. To obtain clearance for this republication, we communicated with Internet Archive to ask about their prescribed republication procedure. We were referred to the website's Terms of Use section, which stipulates that Internet Archive should be listed as a resource in projects that use any content from its collections. We then communicated with the University of Michigan, the digitizing sponsor of the compilation in Internet Archive, to request permission to use their digitized version of the article. Their Copyright Specialist told us that the University of Michigan cannot grant or deny permission to use the digitized article because the university does not hold copyright in the article and would not claim copyright in the digital image of the work.

As published in December 1927, this article did not bear any copyright notice, which usually consists of the word 'Copyright' or the copyright symbol ©, the name of the copyright owner, and the year of its first publication. Our lawyer, Danilo Cullo, pointed out the provision in the present Intellectual Property Code of the Philippines (Republic Act 8293), which states that no copyright subsists in any work of the government. This article, which was published in a government report, is considered 'work of the government.' It may be republished to serve its purpose. We communicated with Juan Belisario's grandson, Manuel Belisario, about this republication project, and he agreed to this republication and signed a publication agreement to represent his grandfather as the author of this work.

We commissioned Michael Timajo to write a statement about the statutory compliance of this republication (Timajo, 38). His rundown of relevant past and current legislations on intellectual property, specially hinged on copyright acquisition, attribution, and consent, can be found next to the republished case report. Finally, we commissioned Eugene Barinaga to write about why this case report is important to us today and what possible lessons we can learn from this 1927 document (Barinaga, 39-40). This case report is an elegant piece of work and a beautiful story that illustrates how health care used to be simple yet effective. We hope you enjoy reading it.

Alvin S Concha
Jesse Jay L Baula

MONTHLY BULLETIN

OF THE

PHILIPPINE HEALTH SERVICE

VOL. VII DECEMBER, 1927 No. 12

REPORT OF A CASE OF BRONCHOPNEUMONIA WITHOUT COUGH SECONDARY TO INFLUENZA

By Dr. JUAN BELISARIO

Resident Physician, Davao Public Hospital

I. J., female, Filipino, single, 20 years old, born and living in the town of Davao, Davao, was taken ill on the eve of her marriage, February 5, 1926, with the chief complaints of fever and headache.

Family history.—Very strong for pulmonary tuberculosis. The grandmother with whom the patient lived while a small girl, died about eight years ago of pulmonary tuberculosis. The father is still living, but clinically and bacteriologically positive for pulmonary tuberculosis. The mother is also still living, but demented.

Menstrual history.—Her menses started at the age of fourteen, of the 4-day type, and has been regularly appearing every 28 days since it first appeared. Patient claims that there is absolutely no trouble with her menstruation.

Previous diseases.—She had measles and chicken-pox while a small girl, and at the age of ten, she had yaws, which became well without treatment. There are white patches on the skin of the left hand, however, as a result of this disease. About eight months ago, she had a mild attack of acute cholecystitis, lasting for about three weeks, and was successfully treated by her physician. It had never recurred, since then. About four months ago, she was treated by her dentist for pyorrhea al-

Belisario J. *SPMC J Health Care Serv.* 2017;3(1):33-37.

veolaris. While undergoing treatment, by her dentist, she vomited blood. According to her, the blood was fresh, scanty in amount, and was mixed with her saliva. Since then, she had never vomited blood again.

Present illness.—It started on February 5, 1926, as fever and headache. But previous to this day, or on the 4th, while the weather was cool and windy, she took a bath with warm water in an almost open bathroom, and in the night of that day, she had malaise. The next afternoon, or on the 5th, she had the fever and headache, for which, she took two tablets of Bayer's Cafiaspirina. The next morning, she was not yet feeling well, so she took a dose of magnessium sulphate, and in the afternoon, her physician was called. When seen by her physician, she had a temperature of 38.2° C., with severe continuous headache all over the head and slight catarrh but no cough. At the same time, she also complained of pain all over the body, especially in the bones and joints, slight backache, especially at the right side, and including the chest, and slight epigastric pain. On examination, the face was flushed, the pulse slightly accelerated, but the heart and lungs were negative. The abdomen and the extremities were also negative. She was diagnosed as case of influenza and was treated as such.

The next morning found her feeling entirely well, the fever, the headache, and all other symptoms had entirely disappeared. So she left her bed and entertained many visitors who were congratulating her. However, in the afternoon, the fever returned, the headache became more severe, and the backache more pronounced. At this time the patient also complained of dull pain all over the right upper extremity. She was forced again to go to bed and at this time her temperature reached 39.2° C. The abdomen became tympanitic, and she was restless. At about midnight, she had vomiting, and in the vomitus, streaks of fresh blood were seen, so her physician was again called. When seen, the respiration was 20 per minute, but not embarrased. The pulse rapid, 110 per minute and the patient was sweating rather profusely. On examination, the abnormal findings were only in the lungs. At the right interscapular area, the tactile fremitus was increased and there was a distinct impairment of resonance. And at the level of the scapular spine at the interscapular region, fine crepitant rales could be heard. The rest of the lungs, and the heart were negative.

Now the patient was diagnosed as bronchopneumonia secondary to influenza, and was treated as such. From the day the

patient felt sick until this day, she had never coughed nor hawked.

On February 8th, or on the fourth day of her sickness, the fever was still very high, the headache all over the head severe, and the backache undiminished. However, she no longer complained of the epigastric pain and the pain at the right upper extremity.

In the night of this day, the fever rose to 40.3° C., and the patient became restless, and she looked so very ill that the family requested that another physician be called for consultation. The attending physicians agreed, so a third physician was called.

The patient was examined, the results of which are as follows:

Patient restless, face flushed and slightly anxious, the temperature 40.3° C.

Respiration, accelerated, 36 per minute, but not labored.

Pulse strong, full bounding, and rapid, about 118 per minute.

The heart beats were strong and rapid, otherwise normal.

Lungs. Increased tactile fremitus at the right, from the apex down to the level of the scapular spine. On percussion, there is slight impairment of resonance over the same area. And on auscultation, fine crepitant rales can be heard, now from the right apex, down to the level of the scapular spine, and at the right interscapular region.

Until then the patient has not yet coughed. The physician attending her had stayed near the bed of the patient for hours waiting for a cough but was sorely disappointed. Those attending her also said that they had never heard her cough at all.

The above diagnosis was agreed upon by the physicians and in addition, the following were considered on account of the very strong family history of pulmonary tuberculosis: pneumonic type of tuberculosis, galloping type of tuberculosis, and tuberculous meningitis.

Now to eliminate these, the sputum was asked to be saved for examination, and the sputum of the whole night was sent to the laboratory of the Davao Public Hospital. The sputum contained nothing but clear saliva. When examined by concentration method of antiformin, it was found to be negative for tubercle bacilus. However, the above possibilities were kept in mind, but she was continued to be treated as bronchopneumonia. No other laboratory examinations were made.

On the next day, or on the fifth day of her sickness, the fever suddenly dropped to 36.4° C., the headache and all other symptoms, except the backache, entirely disappeared. The back-

ache was also very much diminished. When the lungs were again examined, there were found large mucous rales at the right interscapular region.

There was no cough yet until this time.

Since then, the fever did not return, and the patient slowly recovered. Every other day the lungs were examined, and on the 12th day of the sickness only occasional fine crepitant rales could be heard at the right interscapular area. On the 16th day of the sickness, the lungs were almost entirely clear. At the time this article was submitted, the patient was already sitting on a chair, but was not yet allowed to walk.

SPMC JHCS

REPUBLICATION

Report of a case of bronchopneumonia without cough secondary to influenza: notes on legal compliance of republication

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The republication of this material (Belisario, 33-37) sufficiently complies with Republic Act No. 8293, or the Intellectual Property Code of the Philippines,[1] and other rules on intellectual creation. Below is a summary of repealed and current laws in the Philippines that are relevant to the legal compliance of this republication.

The Spanish Copyright Law of January 10, 1879[2] was the first known copyright law in the Philippines. Copyright then was viewed as a property right governed by civil law. When Spain ceded the Philippines to the United States of America in 1898, the US Copyright Law, which protected the author's ownership of copyright, became applicable.

Largely based on US Copyright Law, Act No. 3134, otherwise known as "An Act to Protect Intellectual Property," was passed on March 6, 1924.[3] This was the first copyright law enacted by then Philippine Legislature. It required a formality procedure, by way of registration and deposit of intellectual works to the Philippine Library and Museum, for a copyright grant.[4]

Presidential Decree No. 49, which took effect on December 15, 1972, vested copyright upon the creator of the work "from the moment of (its) creation."[4] The registration and deposit formality requirement of Act No. 3134 was therefore set aside by this law.

When the Internet made it easy for anyone to copy, reproduce and/or sell literary and artistic creations for financial gain or otherwise, Philippine Congress enacted RA No. 8293,[1] or the Intellectual Property Code of the Philippines, on January 1, 1998. This new and prevailing law recognizes the need to legally protect creators from intellectual piracy. The no-formality clause of Presidential Decree No. 49—or copyright protection on the work from the moment of its creation—was adopted.[2]

Accordingly, this republication recognizes the author and his heirs' statutory copyright—both economic right and moral right—over his work from the moment of its creation, during his lifetime, and fifty years after his death.

The republication of his work is compatible with fair use principle and attribution, without any adverse effect on its existing and future value or use.

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Competing interests
None declared

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REPUBLICATION

Report of a case of bronchopneumonia without cough secondary to influenza: commentary

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I never thought that reading a very short medical report (Belisario, 33-37) written almost a century ago would move me in so many levels. The first time I read it, I was figuratively looking through a doctor's eyes, focusing on the management of the patient, and noting how the doctor arrived at the diagnosis and the therapeutics employed. The second time I read it, I was appreciating the beautiful, succinct language that was used by the author and the quaint typeset used, vividly transporting me to an era long gone and helping me to come up with a mental image of the suffering patient. A young woman "from Davao, Davao, was taken ill on the eve of her marriage, February 5, 1926." How tragic this must have been. I ceased counting after the third reading. I may have gone over the case report twenty, or even thirty, more times. It wasn't its brevity—four pages—that made it such an interesting reading. It harks from a bygone era, and piqued the nostalgic historical buff in me.

This was written at a time when Davao was not yet a city, and not yet subdivided (it was inaugurated as a charter city in 1937[1] by then President Manuel L. Quezon, then divided into three provinces, namely Davao del Norte, Davao Oriental and Davao Del Sur in 1967).[2] Electricity was probably still non-existent, as a quick check on the Internet showed that the Davao Light and Power Company only came into being in 1929.[3] My imagination conjured gaslight lamps and the clip-clop of horses pulling carriages, with the occasional car rumbling past.

Dr. Juan Belisario was a resident physician in Davao Public Hospital (DPH), one of the early incarnations of the sprawling, sophisticated hospital we now know as Southern Philippines Medical Center (SPMC). DPH had 50 beds and was located in JP Laurel Avenue, Davao City where the present SPMC-Institute of Psychiatry and Behavioral Medicine now stands. Dr. Belisario published this report when the hospital was still in its infancy, and we can imagine the health facility's very limited resources at that time in terms of diagnostic modalities and available medicines. But these did not deter Dr. Belisario. The clinical history and narration of the course of the illness are almost Holmesian in their thoroughness. The physical examination, especially of the pulmonary system, was done repeatedly and painstakingly. The charting of symptoms and temperature was obsessively undertaken. One of the sentences on the 3rd page really captivated me—"The physician attending her had stayed near the bed of the patient for hours waiting for a cough but was sorely disappointed." If this is not professionalism and compassion for the patient, then I don't know what is.

On a more scientific note, I researched some of the archaic items mentioned so that we can further appreciate this article. Bayer's Cafiaspirina was given to the patient. Now only available in Latin countries, this drug was formulated between the world wars by IG Farben, a subsidiary of Bayer, to compete with other brands of aspirin in Latin America.[4] A combination of caffeine and aspirin, it was given as an analgesic for pains associated with fatigue and tiredness.[5] Due to the patient's very strong family history of tuberculosis, "pneumonic type of tuberculosis, galloping type of tuberculosis, and tuberculous meningitis" were considered by the physicians. The antiformin method mentioned in the third page (page 689 in the original print) is an alkaline antiseptic, which dissolves mucin and freezes tubercle bacilli so they can be sedimented.[6]

The ultimate question I asked myself was "Did I learn anything from this article?" My answer is an emphatic yes. I realized that we should emulate the professionalism, compassion, and perseverance that the author inadvertently—but quite successfully—demonstrated with his blow-by-blow account of the care of the patient. These values, upheld by our forebears in DPH, must also be embraced by the physicians of SPMC today. I realized that we have it relatively easy now. With the fast-paced advance of technology, we now have state-of-the-art diagnostic and therapeutic modalities. Dr. Juan Belisario and the other doctors did not even have a simple x-ray then to monitor the progress of the patient's condition. I felt intense admiration for these doctors who preceded us. They did what they had to do with what little they had.

Now that we have grown into one of the largest tertiary government hospitals not only in our country but also in the Southeast Asian region, we are expected to be at the forefront in the provision of quality and humane medical services. The future holds so much more potential for improving the way we will care for our patients. But it helps to look back and appreciate where we came from. To paraphrase a famous line by Sir Isaac Newton,[7] who in turn paraphrased a passage from the Metalogicon by the 12th century theologian John of Salisbury,[8] *if we have seen further than others, it is by standing on the shoulders of giants.*

Acknowledgments

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Internal

Competing interests

None declared

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Use 2000 words or less for the main text of the report (excluding title, abstract, tables, figures, references, and acknowledgments).

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Table 1 **Reporting guidelines and checklists (http://www.equator-network.org/)**

Study/article types	Checklists and diagrams
Case report	CARE checklist
Randomized controlled trial	CONSORT checklist; CONSORT flow diagram
Observational studies (cohort, case-control, cross-sectional)	STROBE checklist
Meta-analysis and systematic reviews	PRISMA checklist; PRISMA flow diagram
Diagnostic accuracy studies	STARD checklist; STARD flow diagram
Prediction model for individual prognosis or diagnosis	TRIPOD
Qualitative studies	COREQ
Economic evaluation	CHEERS

sex, chief complaint, brief clinical history, physical examination findings, relevant diagnostics, final diagnosis, relevant therapeutics, outcomes, description of the individual photos
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