

Non-healing Ulcers as an Atypical Presentation of Lupus vulgaris in an Adult Filipino: A Case Report

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Cutaneous tuberculosis (TB) occurs rarely, comprising only approximately 1% of all extrapulmonary TB cases worldwide. This report presents an atypical clinical manifestation of Lupus vulgaris, the most common form of cutaneous TB. Typically, Lupus vulgaris presents as chronic erythematous plaques over the head and neck area. The patient, a 24-year-old male with limited support and financial resources, presented with chronic painful, non-healing ulcerated lesions on his left upper extremity. Diagnostic tests specific to TB infection, including culture, all turned out negative for TB. No improvement in the lesions was noted with antibacterial and antifungal therapies. Clinical course of the condition and histopathologic findings, though non-specific to TB, became the basis for diagnosis and treatment. Patient currently is on the 3rd month of anti-Koch's treatment with noted gradual improvement in the character and appearance of the lesions.

Lupus vulgaris could appear as ulcers and over the extremities though much less common, posing challenges in both diagnosis and treatment. Malignant transformation could develop if left untreated. Thus, careful and thorough examination of the patient and diligent follow-up and re-evaluation of lesions while considering the patient's values, concerns and financial capacity, were necessary in successfully addressing both the biomedical and psychosocial aspect of the illness.

Key words: Cutaneous tuberculosis, skin disease, infectious

INTRODUCTION

Mycobacterium tuberculosis is a ubiquitous, infectious pathogen that is associated with significant morbidity and mortality and poses a major public health concern, especially in third world countries.^{1,2} The most common disease presentation of tuberculosis is pulmonary but can affect other organs such as the gastrointestinal tract, neurologic system, bone/joint, and the skin. Cutaneous tuberculosis is relatively uncommon, comprising only 1-1.5% of all extrapulmonary cases.³ Data on cutaneous tuberculosis in the Philippines is scarce. One study from Jacinto, et al. explored the correlation between the occurrence of pulmonary TB and cutaneous TB. However, it revealed few case reports of different clinical manifestations of cutaneous TB with pulmonary TB.³ Clinical presentations vary among cutaneous TB cases, and Lupus vulgaris has several discrete clinical presentations, including plaque, hypertrophic, ulcerative, and vegetative forms. Among various

presentation patterns, a study of 14 cases of Lupus vulgaris was made by Varadraj, et al. (2014), plaque-type was the most common type of presentation (78.5%), ulcerative types comprise 14.28%, and the remaining percentage are tumor-like presentation.¹⁴ Factors such as the pathway of bacterial entry into the skin, the host's immune status, and the presence or absence of host sensitization to *M. tuberculosis* influence the morphologic presentation of TB in the skin.^{4,5}

The definitive diagnosis is the isolation of *M. tuberculosis* on culture. However, confirmation by culture, even when TST is positive, is rare as specimens from the skin lesion of *Lupus vulgaris* are usually paucibacillary.⁴ This would also pose challenges when using the other TB-specific tests in the diagnosis of the condition leading to issues of timeliness and accurate diagnosis of cutaneous tuberculosis.³ Moreover, with limitations in some aspects of care, accessibility, and availability of some diagnostic tests, this case also depicts the importance of placing the patient in the center when formulating the plan of management, considering the psychosocial context of the illness, and engaging the patient and his family when making clinical decisions. This case also highlights the importance of continuity of care and coordination with other medical disciplines.

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Patient Information and Physical Examination

A 24-year-old male, Filipino, presented four months prior to the initial consult with a chief complaint of “rashes” seen in the dorsal aspect of the 3rd digit of his left hand and upper arm. The lesions were described as tender, non-erythematous, and non-pruritic papules measuring approximately 0.3 cm to 0.5 cm, pinkish to reddish with regular circular borders. The patient reported pain in the affected area, especially when cold and during the night. Neither numbness nor paresthesia was noted. The patient had no history of fever, weight loss, loss of appetite, chronic cough, or neurological symptoms. The patient had a previous consultation in a different institution and was prescribed Trimethoprim/Sulfamethoxazole 160mg/800 mg BID, which he took for 7 days. However, no significant improvement was observed. One month prior to the consult, the patient noticed that his seemingly normal-looking rash started to ulcerate and formed a non-healing wound. No medications nor consultation was done due to COVID restrictions and financial constraints.

Past medical history was unremarkable, and the patient denied any previous hospitalization or exposure to or close contact with a TB patient. Family history revealed that his mother died of cardiovascular disease but has no history of any malignancies in the family. The patient is a non-smoker and non-alcoholic beverage drinker. The patient previously worked as a construction worker but had to stop because of his illness. His parents have passed away, and he is the youngest of 4 siblings. All the other 3 siblings already have their own families; thus, they could not support the patient anymore. He is currently living with his aunts, who have been the primary financial providers, working as food vendors in the market. Aside from the limited support and financial resources, issues in accessibility to affordable and available medical care were also encountered. Patient lives in Calaca, approximately 40km from Batangas City, making it hard for the patient and his relatives to travel to and from the institution given the restrictions during the pandemic. However, despite the obstacles and challenges, the patient is determined and hopeful that his illness will be cured so he can go back to work and help his family.

On the clinic consult day, the patient presented with a non-healing wound on his left hand and upper arm. The lesions were described as a plaque measuring 4.0 to 5.0 cm with ulceration, reddish in color with pus and irregular borders. The lesion's periphery is associated with a greenish color and swelling located at the palmar area of the 3rd digit of his left hand (Figure 1). The dorsal region of his hand has lesions described as 0.6 cm to 3.0 cm plaques that begin to ulcerate with associated erythema on its base and edema with regular borders and brownish in color at the periphery (Figure 2). His left upper arm also developed lesions described as ulcerated skin, with edematous, irregular edges measuring aggregately from 7.0 cm to 10.0 cm (Figures 3 & 4). The sporotrichosis-like pattern of lesions was seen (Figure 5 a, b). Left axillary lymph node is noted measuring 0.5 cm to 1cm, painless, movable mass. The remainder of the physical examination was normal.

Diagnostic Assessments

Primary considerations of the origin of the lesions are bacterial, fungal, and mycobacterial infectious processes, vascular disease, and malignancy. Initial impression during the first consult was a Non-healing wound on the left arm and left-hand 3rd digit bacterial, fungal or mycobacterial in etiology; to consider Pyoderma gangrenosum, rule out Cutaneous vasculitis, and soft tissue malignancy; Tenosynovitis, left-hand 3rd digit. Diagnostic tests requested were AV duplex ultrasound of the left arm, complete blood count and chemistry, chest X-ray, and sputum Xpert MTB/Rif. A referral was made to the Surgical Service for tissue biopsy, IM-dermatology, Orthopedics, and the Wellness Hub. The patient was also advised for proper wound cleaning and care.

The initial antibiotic regimen failed to show any improvement in the patient's lesion; therefore, wound gram stain (GS), and culture and sensitivity (CS) test were requested. Results revealed *Pseudomonas aeruginosa* infection, and his initial antibiotic therapy was shifted. Other laboratories and diagnostic tests were unremarkable, and HIV testing was non-reactive. An initial incision biopsy revealed skin fragments with thickened dermal collagen bands, diffuse lymphohistiocytic infiltration, and focal necrosis, strongly suggestive of an infectious etiology.

One month after the initial consult, there is still noted progression and worsening of his lesions with evident involvement of most of the surface area of the 3rd finger with persistent ulcerations (Figure 7 a,b), despite antibiotic treatment. The patient was then advised to be admitted under the Internal Medicine- Dermatology service and requested a repeat tissue biopsy to rule out a still high clinical suspicion of any malignant process. An excision biopsy of two wound sites with ulcer edges (for adequate sampling) was done. Biopsy revealed fragments of skin with granulation tissue formation and pseudoepitheliomatous hyperplasia with probable fungal elements are seen. KOH smear skin scraping was done, which revealed positive for fungal elements. Fungal, and mycobacterial tissue culture was done and sent out for evaluation at the Research Institute for Tropical Medicine (RITM). The patient was then diagnosed with a Non-healing, infected wound, left arm and hand (3rd digit) probably secondary to Sporotrichosis or *Mycobacterium* spp. with superimposed bacterial infection, Tenosynovitis, 3rd digit, left hand. The patient was then subsequently started on anti-fungal medication. An Orthopedics referral was also done, and the patient was advised for wound debridement.

TST was requested, and the patient was able to comply, showing an induration of more than 20 mm, which is a positive test. The patient was lost to follow-up in the interim because of financial constraints. However, he was able to continue taking Itraconazole 200 mg BID for almost 3 months despite the expense of the medication, but no resolution of his lesions was noted. His 3rd digit Tenosynovitis was also getting worse, and he was advised for surgical debridement, but due to restrictions of COVID-19 and lack of funds, the patient was unable to follow up.

Six months after the initial consult, no improvement was seen in the lesion (Figure 8 a, b). An X-ray of his left upper extremities was done, which revealed no evidence of gross fractures or dislocation. Due to the limitation of funds and inaccessibility from the patient's endpoint, MRI was not done. MRI could have demonstrated the possible involvement



Figure 1.
Lesion on the palmar area 3rd digit left hand



Figure 2.
Multiple lesions at the dorsal are 3rd digit left hand



Figure 3.
Irregular lesions located at the left upper arm (brachial and medial area).



Figure 4.



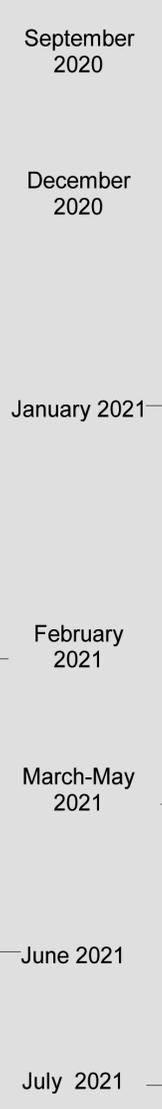
Figure 5 (a) and (b). Sporotrichoid-like pattern of the lesion.

Timeline

Chief complaint: 24-year-old male, presented at the clinic with a non-healing wound at his hand and upper arm. Patient has no history of trauma nor any history of illicit drug use.

Patient noted a "rash" seen in dorsal aspect of 3rd digit of his left hand. Had consultation at different institution and was given TMP-SMX 160/800 mg BID taken for 7 days. Offered no relief.

Lesions started to ulcerate and forms a non-healing wound. No medications nor consultations was done at this time.



Patient was seen for the first time at the OPD clinic.

Initial diagnosis upon assessment: non-healing, infected wound on left arm and left-hand 3rd digit probably secondary to infection (bacterial, fungal or mycobacterial in etiology) t/c pyoderma gangrenosum, r/o cutaneous vasculitis and soft tissue malignancy: Tenosynovitis. left hand 3rd digit

Started on Sulodexide 250 mg BID, Sultamicillin 750 mg BID and Clindamycin 300 mg q6. CBC, blood chem, chest xray, gene expert, tissue biopsy and referral to dermatology, orthopedics and wellness hub

Failure of response to initial antibiotic. Wound gs/cs done. Shifted antibiotic to Ciprofloxacin 750 mg BID x 14 days. Due to persistent progression of signs and symptoms patient was admitted for repeat biopsy. -Mycobacterial/fungal culture requested -KOH smear done → fungal elements -Started on Itraconazole 200 mg BID for 3 months -Patient's resources starting to get depleted

Patient took Itraconazole for 3 months but offered no resolution to lesions. Patient was advised for wound debridement of the 3rd digit of his left hand secondary to tenosynovitis but wasn't able to comply due to financial constraints.

Partial finger amputation of the 3rd digit of his left hand was done secondary to tenosynovitis -TST with result >20 mm induration -Anti-koch's medication was started in consultation with IM derma

Patient is on second month of Anti-koch's with visible improvement of lesion. Strict compliance to medication and follow up is advised.

Outcome: Patient's lesion shows signs of wound healing after 2nd month on anti-Koch's medication. Signs of wound healing seen are the following: decrease in size and depth of wound, formation of pinkish granulation tissue and absence of necrotic tissue and pus.

Figure 6. Overview of the timeline of patient's course of disease intervention and treatment



Figure 7 (a) and (b). Lesions after a month of treatment regimen with antibiotics.



Figure 8 (a) & (b). Lesions after 3 months of Itraconazole treatment

of deeper structures. The patient underwent partial finger amputation of the 3rd digit of his left hand due to complications of Tenosynovitis. Fungal and mycobacterial tissue culture came out negative for any growth.

Intervention

The patient was initially given Sultamicillin 750 mg BID x 7 days, Clindamycin 300 mg q6 x 7 days, Sulodexide 250 mg BID x 14 days, and Mupirocin ointment to be applied BID. Cellulitis and vascular disease were suspected at this time. Sultamicillin is active against *Staphylococcus aureus*, *Enterobacteriaceae*, and anaerobic bacteria. Clindamycin has a primarily bacteriostatic effect that is effective as well on *S. aureus*, *S. pneumoniae*, *S. epidermidis*, and *P. acnes*.¹⁶ Sulodexide inhibits aggregation and adhesion of platelets at the vascular wall, reducing plasma fibrinogen concentrations, and is one of the

treatments of choice when dealing with vascular diseases.¹⁷ However, no significant response was seen to the patient's lesion after completion of the regimen. Wound GC/CS was done, which revealed *Pseudomonas aeruginosa*. Ciprofloxacin, a fluoroquinolone, was an effective bactericidal agent against *Pseudomonas aeruginosa*¹⁶ and cultured shows sensitivity to Ciprofloxacin; hence high dose of Ciprofloxacin 750 mg BID x 14 days was started on the patient.

Itraconazole and Ciprofloxacin 750 mg BID were added to the regimen due to clinical suspicion of Sporotrichosis infection. Itraconazole is the drug of choice for lymphocutaneous sporotrichosis. Its mode of action acts by inhibiting the conversion of lanosterol to ergosterol, which inhibits the disruption of the fungal cell membrane. It is given at 100-200 mg/day OD, usually for 3-6 months.¹⁸ Fungal cultures showed no growth, and the lesion didn't respond well to Itraconazole medication despite 3 months of intake; hence was discontinued.

The patient underwent partial finger amputation of the 3rd digit of his left hand due to complications of tenosynovitis. Tenosynovitis is an inflammatory condition affecting the tendon sheath. Infectious forms of Tenosynovitis can be rapid and progressive, resulting in damage to the tendon and surrounding structures, which in addition to wound debridement and antimicrobial therapy, may also necessitate amputation.¹⁹

Despite the Mycobacterial tissue culture result being negative for any growth, anti-Koch's medication was started with consultation and agreement with other specialties. The decision was made based on clinical as well as histologic presentations, both suggestive of mycobacterial etiology. The final diagnosis was Non-healing, infected wound, left arm and hand (3rd digit) secondary to Cutaneous tuberculosis (Lupus vulgaris); Tenosynovitis, 3rd digit, left hand. Complete recovery with scarring is the expected outcome with appropriate treatment. However, the therapy required to cure the disease is protracted and chronic.

Currently, the patient is undergoing anti-Koch's therapy. Side-effects of which were thoroughly explained. Therapy involves 2 months of HRZE and 4 months of HR treatment. He responded well to the 2-month intensive phase of tuberculosis therapy with marked resolution of the lesions and is in the third month of treatment. Mupirocin Ointment was added to his regimen for wound healing. The patient is also advised for physical rehabilitation for the contracture of his left upper arm.

Follow-up and Outcomes

On subsequent follow-up, the patient noted significant improvement in his lesions 1 month after anti-Koch's medication. The presence of granulation tissue at wound edges and evidence of tissue viability was visibly demonstrated (Figures 9, 10 & 11).

Complications of Lupus vulgaris are marked contractures and scarring.¹⁴ In the case, the patient, developed contracture of his upper extremities and was advised for rehabilitation, physical therapy, and

orthopedics consultation for close follow-up. Close monitoring of lesion progression or resolution is strictly reiterated to the patient. Anti-Koch's medications which are freely acquired at their local TB dots center, are tolerated with no side effects.

DISCUSSION

The patient's initial presentation was consistent with the infection that is probably bacterial, fungal, or mycobacterial in origin due to a non-healing ulcerated wound on his left hand and arm. However, due to the extent of the lesion presented upon consult, several diseases must be ruled out apart from the ongoing infection. Peripheral vascular disease was initially considered to the patient because of its predilection in men and family history of heart disease. The unremarkable AV duplex result ruled out the condition. The patient's subsequent biopsies also ruled out ongoing malignancies.

Cellulitis was also initially diagnosed because of the characteristic erythematous tender nodules. In cellulitis, the bacterial infection of the skin usually begins as a small area of pain and redness. It may occur anywhere on the body with signs and symptoms, including redness, tenderness, and pain in the involved tissues. Either Streptococcus or Staphylococcus causes most of the cellulitis.⁶ Failure of Clindamycin and Sultamicillin, wound GS/CS result, and histologic findings on biopsy ruled out the diagnosis and prompted further investigation of etiology.

Pyoderma gangrenosum was considered because of pustule changing into larger ulcerative lesions and the predominant pain complaint of the patient. Pyoderma gangrenosum is an ulcerative condition of uncertain etiology. It may involve other organ systems that manifest as sterile neutrophilic infiltrates. It is most associated with inflammatory bowel disease, polyarthritis, and hematologic disorders.⁷ On the other hand, the histologic findings include massive neutrophilic infiltration, hemorrhage, and necrosis of the overlying epidermis, which is not apparent in the biopsy results of our patient.



Figure 9.
Partial amputation on left hand 3rd digit



Figure 10.
Marked evidence of healing on upper arm



Figure 11.
Lesion on dorsal aspect of left hand with granulation tissue formation

Fungal and mycobacterial tissue culture was done along with a repeat biopsy for adequate tissue sampling. Concomitant findings of *Pseudomonas aeruginosa* on wound GS/CS and fungal elements on KOH scrapings prompted the start of Ciprofloxacin 750 mg BID x 7 days and Itraconazole 200 mg BID x 14 days. The management was carried out in agreement with IM-dermatology. Working diagnosis during this time was infection secondary to Sporotrichosis vs. Mycobacterium spp.

The repeat tissue biopsy showed characteristic pseudoepitheliomatous hyperplasia, a benign condition characterized by hyperplasia of the epidermis and adnexal epithelium, often mimicking squamous cell carcinoma. Zayour, et al. (2011) discussed the most common disorders associated with pseudoepitheliomatous hyperplasia, which are mycobacterial and deep fungal infections.⁷ However, since the fungal infection was previously ruled out due to negative fungal culture and failure to respond to Itraconazole, a more likely Mycobacterial etiology was considered.

Interestingly, the Mycobacterial culture result was also negative. However, even when cultures for Mycobacterium are negative, studies show that molecular evidence suggests that this is due to a hypersensitivity reaction to fragments of mycobacterial organisms, as demonstrated by PCR analysis on lesioned tissue.⁹ According to the study made by Santos, et al. (2014), in an exclusively cutaneous presentation, positivity is lower as compared to pulmonary TB. Cutaneous TB positivity in cultures is only 23% in traditional media, while pulmonary TB is 80-85% sensitivity and 98.5% specificity. The use of radiometric culture media increases the positivity of detecting Cutaneous Tuberculosis by 75%. However, these media are not accessible or known to everyone.¹

The case presented is a rare case of Cutaneous tuberculosis, particularly the Lupus vulgaris type. As in this patient, Lupus vulgaris presents as an initial lesion that is a small, reddish-brown papule or nodule, which later forms a larger lesion that could present in various forms, more commonly plaques but could also present in an ulcerative and mutilated form. Large plaques with ulceration may show irregular areas of scarring with islands of active lupus tissue; the edge may be thickened and hyperkeratotic, which is very evident in the patient. Lupus vulgaris generally involves the lower half of the body but could less commonly involve other sites such as the upper limb, chest, and back. Lesions occur in normal skin due to direct extension from underlying deeper TB focus by lymphatic or hematogenous spread.¹⁰

Cutaneous tuberculosis has different variants in which bacterial load is considered. Multibacillary forms are those in which bacilli are easily detected in cutaneous tissue or isolated in exudate, examples of which are scrofuloderma, tuberculous chancre, gumma, and military tuberculosis; whereas in paucibacillary forms, it is difficult to isolate the organisms with bacilli being sparse or even not visualized in histology. They are less common and include lupus vulgaris and TB verrucosa cutis. Other forms are the tuberculids which include erythema induratum.

Lupus vulgaris is the most common form of cutaneous tuberculosis in adults.¹⁵ It is a type of paucibacillary TB that could occur through the contiguous extension of the disease from underlying affected tissue or hematogenous or lymphatic spread.¹¹ It is difficult to diagnose because skin biopsy with histological examination reveals tuberculous granulomas with few to no bacilli. Moreover, confirmation by culture is rare, even though an individual's TST is usually positive. It could also

present in atypical forms such as ulceration with tumoriform lesions that could mimic diseases such as sporotrichosis, actinomycosis, and mycetoma. And it can be diagnosed through clinical and histopathological features, positive epidemiology for Tuberculosis, evidence of *M. tuberculosis* infection, and improvement with TB therapy. In our case, the clinical pattern of the lesions, positive TST test, resolution of lesions with anti-Koch's therapy, and the histopathology result was all suggestive of Cutaneous tuberculosis (Lupus vulgaris). Laboratory tests that are also helpful in diagnosing LV are the Polymerase Chain Reaction which can detect Mycobacterial DNA in biopsy specimens, and interferon-gamma release assays, but these are not available in our institution. The patient has limited resources for these tests.

Treatment of Lupus vulgaris follows the same guidelines as that of TB of other organs. A short course of four-agent chemotherapeutic regimen (Isoniazid, Rifampicin, Pyrazinamide, and Ethambutol) given for 2 months and followed by Isoniazid-Rifampicin regimen for the next 4 months.¹¹

Skin disease is accompanied by social stigma and discrimination, especially in skin lesions that could be very disfiguring. It could include consequences such as depression, anxiety, impaired quality of life, and low self-esteem.¹² As in this patient's case, partial amputation of the 3rd digit of his left hand has left him a bit in distress and anxious though the patient was aware of this possible outcome and has already prepared himself mentally and physically. Still, he adds that he still felt quite sad because of the possible consequences it might do on his self-esteem, self-image, career, and relationship. A physician must treat the patient and not just the disease. Apart from the medical intervention and coordination with other specialties, it is also empiric to influence people's attitudes through increasing awareness of Tuberculosis. Guiding and supporting patients and validating their emotions improves overall patient satisfaction in managing their illness.

Patient Perspective

He was worried at first about the possible causes of his lesions. He was scared that it could be cancer or even contagious, and people might discriminate against him. The illness had burdened him, especially when he lost his work and had to support the diagnostic tests and medications financially. Despite all of these, he said he is very thankful for the support he received from his aunts since his parents have already passed away. His cousin, a barangay health worker, also helped him a lot, especially on going to the hospital and acquiring the medications at their local health clinic. Diagnosing his disease was long and very trying at times; he says that he sometimes loses hope. But now that he is noticing improvements in the appearance of his skin, he has somewhat regained the optimism that he might be able to return and live an everyday life.

Extensive knowledge about dermatologic cases, especially those with unusual presentations, is required in this case. It also demands good clinical assessment and reiterates the importance of follow-ups to monitor the patient's progress. Moreover, eliciting the patient's perspective and insights on his condition could reveal emotions and issues that may need to be assessed to ensure diagnostics and therapeutic management compliance. Lupus vulgaris is one manifestation of

Cutaneous tuberculosis that mimics other diseases and does not adhere to a typical clinical feature, which poses difficulties in treating the patient in a targeted manner. It can never be overemphasized that a chronic, devastating condition can be improved and eventually treated with thorough clinical assessment, a good patient-doctor relationship, collaborative care involving other disciplines, and positive reinforcement and patient education.

REFERENCES

- Santos JB, Figueiredo AR, Ferraz CE, Oliveira MH, Silva PG, Medeiros VL. Cutaneous tuberculosis: epidemiologic, etiopathogenic and clinical aspects - part I. *An Bras Dermatol* 2014. [https://doi: 10.1590/abd1806-4841.20142334](https://doi.org/10.1590/abd1806-4841.20142334).
- Decline in reported TB cases an effect of the pandemic. (2020, July 21). Department of Health. <https://doh.gov.ph/press-release/decline-in-reported-tb-cases-an-effect-of-the-pandemic-doh>
- Khadka P, Koirala S, Thapaliya J. Cutaneous tuberculosis: clinicopathologic arrays and diagnostic challenges. *Dermatol Res Pract* 2018. [https://doi: 10.1155/2018/7201973](https://doi.org/10.1155/2018/7201973).
- Frankel A, Penrose C, Emer J. Cutaneous tuberculosis: a practical case report and review for the dermatologist. *J Clin Aesthet Dermatol* 2009; 2(10):19-27.
- Recommendations from the National Tuberculosis Controllers Association and CDC. (2005, December 16). CDC MMWR; www.cdc.gov/mmwr/preview/mmwrhtml/rr5415a1.htm
- Stöppler MC. Cellulitis. *MedicineNet* 2022. https://www.medicinenet.com/cellulitis/article.htm#what_causes_cellulitis_is_cellulitis_contagious
- Thrombophlebitis. (n.d.). Mayo Clinic. Retrieved August 17, 2018, from <https://www.mayoclinic.org/diseases-conditions/thrombophlebitis/symptoms-causes/syc-20354607>
- Zayour M, Lazova R. Pseudoepitheliomatous hyperplasia: a review. *Am J Dermatopathol* 2011. [https://doi: 10.1097/DAD.0b013e3181fcb47](https://doi.org/10.1097/DAD.0b013e3181fcb47).
- Plaza JA & Prieto VG. *Inflammatory skin conditions*. W.B. Saunders 2009; 1843-89. <https://doi.org/https://doi.org/10.1016/B978-1-4160-3966-2.00048-5.1843>
- Sachidanand S, Sharavana S, Mallikarjun M, Nataraja HV. Giant lupus vulgaris: A rare presentation. *Indian Dermatol Online J* 2012. [https://doi: 10.4103/2229-5178.93498](https://doi.org/10.4103/2229-5178.93498).
- Handog EB, Gabriel TG, Pineda RT. Management of cutaneous tuberculosis. *Dermatol Ther* 2008. [https://doi: 10.1111/j.1529-8019.2008.00186.x](https://doi.org/10.1111/j.1529-8019.2008.00186.x).
- Jacinto SS, de Leon PL, Mendoza C. Cutaneous tuberculosis and other skin diseases in hospitalized, treated pulmonary tuberculosis patients in the Philippines. *Cutis* 2003; 72(5):373-6.
- Barbagallo J, Tager P, Ingleton R, Hirsch RJ, Weinberg JM. Cutaneous tuberculosis: diagnosis and treatment. *Am J Clin Dermatol* 2002. [https://doi: 10.2165/00128071-200203050-00004](https://doi.org/10.2165/00128071-200203050-00004).
- Pai VV, Naveen KN, Athanikar SB, Dinesh US, Divyashree A, Gupta G. A clinicohistopathological study of lupus vulgaris: A 3 year experience at a tertiary care centre. *Indian Dermatol Online J* 2014. [https://doi: 10.4103/2229-5178.142497](https://doi.org/10.4103/2229-5178.142497).
- Chalkley LJ, Koornhof HJ. Antimicrobial activity of ciprofloxacin against *Pseudomonas aeruginosa*, *Escherichia coli*, and *Staphylococcus aureus* determined by the killing curve method: antibiotic comparisons and synergistic interactions. *Antimicrob Agents Chemother* 1985. [https://doi: 10.1128/AAC.28.2.331](https://doi.org/10.1128/AAC.28.2.331).
- Murphy PB, Bistas KG, Le JK. Clindamycin. 2022 May 8. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 Jan.
- Lasierra-Cirujeda J, Coronel P, Aza M, Gimeno M. Use of sulodexide in patients with peripheral vascular disease. *J Blood Med* 2010. [https://doi: 10.2147/JBM.S10558](https://doi.org/10.2147/JBM.S10558). Epub 2010 Jun 15.
- Mahajan VK. Sporotrichosis: an overview and therapeutic options. *Dermatol Res Pract* 2014. [https://doi: 10.1155/2014/272376](https://doi.org/10.1155/2014/272376). Epub 2014 Dec 29.
- Ray G, Sandean DP, Tall MA. Tenosynovitis. In: StatPearls [Internet] 2022. Treasure Island (FL): StatPearls Publishing; 2022 Jan.