

# Lymphocutaneous sporotrichosis of the abdominal wall: A lesson in lymphatic drainage

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## SUMMARY

**Cutaneous sporotrichosis (CS) presents as asymptomatic lesions of varied morphology. The most common variant is the lymphocutaneous type which typically progresses from a papule to an ulcer and then forms nodules along the superficial lymphatic channels. Diagnosis CS may be challenging when the lesion presents at an uncommon site where the superficial lymphatic drainage is unfamiliar. We present here a case of sporotrichosis of the abdominal wall which was initially misdiagnosed as an abscess but later confirmed by culture and managed successfully.**

## INTRODUCTION

Sporotrichosis a deep fungal infection secondary to *Sporothrix schenckii* is found in plants, soil or on animals. In contrast to superficial fungal infections caused by the tinea or candida species, this infection affects the subcutaneous tissue, hence present with a different morphology. Lesions develop when the fungus gains entry through cuts, wounds or even microtrauma in the skin, commonly on exposed areas such as the hands, feet and the face.<sup>1</sup>

*S. schenckii* commonly causes localized infections and occasionally systemic infections especially among immunocompromised individuals. Cutaneous sporotrichosis manifests clinically as lymphocutaneous, fixed and disseminated morphological variants. Lymphocutaneous sporotrichosis is the most common variant, accounting for about 70 to 80% of cases. We report here a case of sporotrichosis presenting at an unusual site challenging the initial clinical diagnosis.

## CASE REPORT

A 62-year-old man presented with an asymptomatic ulcer and multiple nodules on the abdominal wall for 2 months. The lesion initially started as a single papule which later developed into a pustule. The lesion gradually enlarged and broke down in the centre forming an ulcer with serous discharge. Later, a few new lesions appeared around the first lesion. The patient denied any animal bite, scratch or injury at the site. He was fond of gardening and frequently worked shirtless in the garden due to the hot climate. He was otherwise well and had no other medical problems. The lesion was initially suspected to be bacterial in origin and he was treated with cap cloxacillin 500mg four times a day for

one week. When there was no improvement, he was prescribed Tab Augmentin 500mg twice daily for a week. He was then referred to the dermatologist for second opinion when there was no response to the antibiotics.

On examination, a non-tender oval ulcer measuring 4cm x 2cm x 0.5cm was noted on skin of the abdominal wall at the left hypochondrium. The ulcer margin was indurated, irregular and there was slough at the base. A few dusky nodules were seen radiating from the main lesion towards the left and the right nipple (Figure1).

Axillary and inguinal lymph nodes were not palpable. A presumptive diagnosis of deep fungal infection was made and patient was subjected to skin biopsy and culture. Histopathology of the skin showed, spongiotic dermatitis with superficial, deep and peri-adnexal lymphocytic infiltrations. PAS staining was negative for fungal bodies and the immunofluorescent studies was negative. *S. schenckii* was isolated from tissue culture while bacterial and mycobacterium cultures were negative. The patient was treated with oral Itraconazole 200 mg twice daily for three weeks. The wound healed leaving a small hypertrophic scar and post inflammatory hyperpigmentation macules at the site.

## DISCUSSION

Localized sporotrichosis of the abdominal wall is very rare with only a few cases reported.<sup>1,2,3,4</sup> It usually occurs on the limbs and face as these areas are vulnerable to trauma during agricultural activities or by direct inoculation from animal scratch or bite. These lesions are mostly asymptomatic, initially presenting as a papule at the site of inoculation after an incubation period of days to months with an average of 3 weeks.<sup>5</sup> The papule then enlarges and develops into a pustule or nodule which at this stage is often mistaken for a bacterial abscess and treated with antibiotic. The absence of pain, erythema and purulent discharge suggests a non-bacterial etiology.<sup>5</sup> A swab for culture and sensitivity should be performed for infected wounds which are not healing or worsening. This should ideally be done before empirical antibiotic treatment is initiated as antimicrobials may affect culture results. Poor or absence of clinical response to antibiotics requires reassessment of the patient and review the diagnosis.

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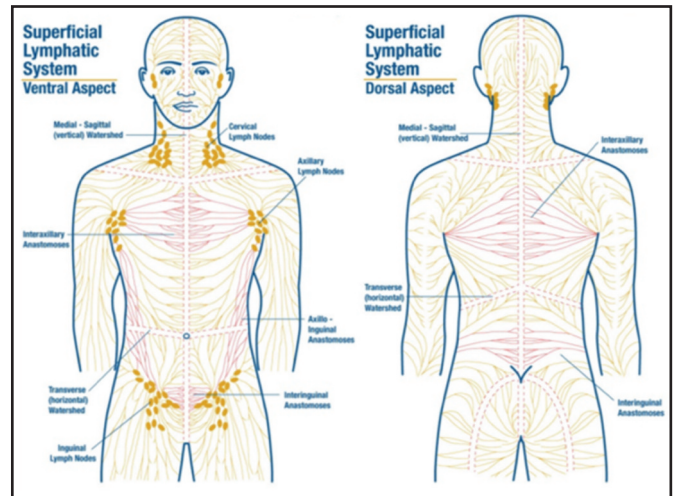
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**Fig. 1:** A large ulcer with irregular margins and slough at the base is seen at the left hypochondrium with a few dusky nodules seen radiating towards the axilla from the lesion (sporotrichoid spread).

If left untreated, the nodule further enlarges and ulcerates forming a sporotrichotic chancre. Characteristic satellite lesions develop along the lymphatic channels draining the affected area described as the “sporotrichoid spread”.<sup>5,6</sup> It usually presents along the lymphatic drainage in an ascending manner when inoculation occurs at the distal part of a limb. The superficial lymphatics of the abdominal wall are unique. The area above the umbilicus drains diagonally into the axillary lymph nodes while the area below the umbilicus drains diagonally into the inguinal lymph nodes.<sup>7</sup> In our patient, the inoculation was located above the umbilicus hence the sporotrichoid spread occurred diagonally towards the right and left axillary lymph nodes. This unique appearance, unlike the linear ascending pattern commonly seen on the limbs when the inoculation occurs on the distal part of the limb, casted doubt in the diagnosis during initial clinical assessment. A good knowledge of the superficial lymphatic drainage pattern of the abdominal wall and the typical clinical features of the lesion helped to narrow down the diagnosis. Figure 1, clearly illustrates the superficial lymphatic drainage of the face, upper chest, abdomen and back. The lymphocutaneous sporotrichosis is the most common subtype of cutaneous sporotrichosis seen in Malaysia.<sup>8</sup>

Although *S. schenckii* is the most common cause for the sporotrichoid spread, other pathogens such as *Mycobacterium marinum*, *Leishmania brasiliensis*, *Nocardia brasiliensis*, *Pasteurellatularensis*, *Coccidioidomycosis*, *Cryptococcus*, *Blastomycosis*, *Histoplasmosis* may cause a similar presentation.<sup>6,9</sup> The gold standard test for diagnosing *S. schenckii* is by isolating the fungus by culture.<sup>5</sup> Confirmation should be established before treatment is initiated as the choice of drug, dose and duration of treatment for different pathogens may differ.



**Fig. 2:** Superficial lymphatic drainage of the skin on the abdomen showing the region above the level of the umbilicus drains into the axillary lymph nodes while the region below the level of the umbilicus drains into the inguinal lymph nodes (image courtesy of Klose Training and used with permission from Klose Training & Consulting, Colorado).

In summary, subcutaneous fungal infection may be mistaken for bacterial infection as the initial lesions may have similar clinical features. Poor response to antimicrobial therapy and negative bacterial culture should raise the suspicion of an alternative pathogen. Knowledge of the superficial lymphatic drainage pattern is essential to make a clinical diagnosis of sporotrichosis infection in rare sites such as our case. The sporotrichoid spread is not exclusive to *S. schenckii* hence the causative agent must be confirmed by biopsy and culture for selection of the optimal treatment.

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