CASE REPORT

Coexistent dermatofibrosarcoma protuberans and anticonvulsant-induced cutaneous lymphoid hyperplasia: diagnostic challenge

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SUMMARY

A 60-year-old African-American male patient with a history of seizures, developmental delay, long history of behavioural issues with psychotic episodes, heart, liver, thyroid and kidney diseases presented for evaluation of a right neck skin lesion. Physical examination revealed a shiny purplish-red plaque on the right neck and a thin pink plaque on the posterior neck. The lesions were similar in appearance, but different enough to warrant skin biopsy of each. Pathology demonstrated mycosis fungoides (MF) on the right neck and dermatofibrosarcoma protuberans (DFSP) on the posterior neck. The identification of two rare conditions made us reconsider our diagnosis. After further review, the right neck skin lesion was thought to be anticonvulsant-induced cutaneous lymphoid hyperplasia, not MF. This case demonstrates how insufficient skin biopsy can have significant clinical consequences. Biopsy of the right neck only would have overlooked a DFSP and incorrectly given the patient a diagnosis of MF.

BACKGROUND

Though skin biopsy is one of the most common procedures that dermatologists perform, until recently there has been little in the literature about how to maximise results. Three points are important to note here—in challenging cases, histological interpretation is crucial to diagnosis; consequently, the process of performing the biopsy in the most appropriate way and in the right location is paramount.¹ From the pathologists' perspective, having the most tissue possibly available for examination is always preferable.² However, the dermatologist must also consider the cosmetic effects of the procedure and thus must balance the need to obtain an appropriate specimen for the disease to be studied versus the scar that will result after the biopsy.³ In some cases, multiple biopsies may be required for diagnosis, but numerous biopsies also may leave the patient with unnecessary scars. On the other hand, insufficient skin biopsy may not obtain necessary clinical information and, as this case demonstrates, can have important clinical consequences. We present a case that demonstrates the importance of obtaining adequate skin biopsy to obtain the correct diagnosis to guide management.

CASE PRESENTATION

Our patient was a 60-year-old African-American man with a history of seizures, developmental delay, long history of behavioural issues with psychotic

Figure 1 Right neck: a 3×1 cm shiny purplish-red plaque.

episodes, heart abnormalities, liver, thyroid and chronic kidney diseases and cataracts who presented for evaluation of a lesion on his right neck that had been there for 4–5 months. As per a nursing home staff report, the lesion was persistent, enlarging and changing colour from red to purple. No associated pain, pruritus or irritation was noted. Current medications included carbamazepine, zonisamide, aripiprazole, lorazepam, fluoxetine, trihexyphenidyl and aspirin. Physical examination revealed a 3×1 cm shiny purplish-red plaque on the right neck (figure 1) and an ~1 cm pink-red thin plaque on the posterior neck (figure 2). The lesions were slightly similar in appearance, but different enough to warrant skin biopsy of each lesion. Since the skin eruption was limited to two lesions, a systemic workup was not conducted.

INVESTIGATIONS

The pathology report demonstrated findings suggestive of mycosis fungoides (MF; figure 3A,B)

Figure 2 Posterior neck: a 1 cm pink-red thin plaque.

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Figure 3 (A) H&E, ×4: dense lichenoid infiltrate of large lymphocytes with convoluted nuclei. (B) CD3, ×4: dense infiltrate stains prominently with CD3 consistent with T-cell lineage. Note: histology initially thought to be consistent with mycoses fungoides, a cutaneous T-cell lymphoma. After clinicopathological correlation, the pathological findings were determined to be consistent with an anticonvulsant-induced cutaneous lymphoid.

from the right neck and dermatofibrosarcoma protuberans (DFSP; figure 4A,B) from the posterior neck/upper back.

DIFFERENTIAL DIAGNOSIS

The identification of two rare conditions caused us to reconsider the diagnosis. On further review of the histology, the lesion from the right neck was thought to be consistent with drug-induced cutaneous lymphoid hyperplasia (CLH; figure 3A,B), attributed to the patients' anticonvulsant use (carbamazepine).

TREATMENT

Daily topical clobetasol steroid treatment was prescribed to treat the right neck lesion. In addition, discontinuation of carbamazepine was recommended. Excision of the DFSP on the posterior neck/upper back with 2 cm margins to the deep fascia was performed. Owing to the patient's inability to tolerate extended surgical procedure under a local anaesthesia, the excision was completed by plastic surgery in the operating room.

OUTCOME AND FOLLOW-UP

The right neck CLH lesion resolved after 6 weeks of clobetasol treatment. The patient was continued on zonisamide as monotherapy and at the time of this report, to our knowledge, he has not had any new epileptic episodes. The surgical site from DFSP excision is healing well postoperatively with no signs of recurrence until now (4 months after excision).

DISCUSSION

When evaluating a skin eruption, the decision on where to perform biopsy is important as it is critical to biopsy a representative lesion to obtain accurate information to drive management. When a patient has multiple patterns of lesions, the decision on where to biopsy can be even more challenging. In this case, the recognition that the lesions were slightly different enough to merit individual skin biopsy proved to be a very prescient observation.

Performing only one biopsy of the more prominent lesion on the right neck would have had important clinical consequences. It would have overlooked the diagnosis of DFSP on the patient's posterior neck and incorrectly given the patient the diagnosis of MF. The identification of two rare conditions of MF (0.4 cases/100 000 in the USA)⁴ and DFSP (0.8–4.5 cases/1 000 000 in the USA)^{5–6} gave us a pause. MF can have diverse appearances, but typically presents as multiple lesions or as an eruption, and not as a solitary lesion.⁴

Simultaneous diagnosis of DFSP and another tumour is extremely rare. Tilkorn *et al*⁷ reported a case of DFSP presenting with Merkel cell carcinoma. Their patient was a 74-year-old woman with a history of a recurrent DFSP, who presented with metastatic Merkel cell carcinoma.⁷

A search of the literature revealed one case of coexistent MF and DFSP. Cinque *et al*⁸ described a 28-year-old Caucasian patient with no medical history or medications. This patient's DFSP presented as a flesh-coloured and indurated plaque with yellowish nodules and telangiectasias. Erythematous and well-defined patches on the trunk were found to be consistent with

Figure 4 (A) H&E, ×4: filling the dermis and infiltrating into the subcutaneous fat is a proliferation of wavy and spindle-shaped cells arranged in short fascicles. (B) CD34, ×4: CD34 immunohistochemical stain was strongly positive confirming the diagnosis of dermatofibrosarcoma protuberans (DFSP). Note: histology typical of DFSP.

MF on skin biopsy.⁸ Our case differed from this case because, unlike the patient reported by Cinque *et al* who had an eruption on her trunk, our patient had only one solitary lesion that was suspicious for MF.

Further review of the patient's clinical history of seizures and carbamazepine use led us to interpret the pathological findings from the patient's right neck lesion as drug-induced CLH and not MF. Drug-induced CLH is rare but is thought to be the correct diagnosis in this patient because he had only one lesion. In addition, one of the most common culprits of CLH is anticonvulsants and, in particular, carbamazepine.⁹ Pseudolymphoma (or CLH) was first described in 1984 by Shuttleworth *et al*.¹⁰ Carbamazepine can cause different types of skin reactions and the incidence varies widely. It is much less common for zonisamide, the patient's other anticonvulsant to cause rashes, and thus the CLH was attributed to carbamazepine.¹¹

It was an important observation to make that the right neck lesion was CLH (and not MF). In patients with MF, we often perform systemic workup including bone marrow biopsy for staging purposes. The additional skin biopsy performed saved this patient from having unnecessary invasive testing. More importantly, if we had only performed one skin biopsy, we would have failed to diagnose the DFSP on his posterior neck/upper back. While typically slow growing, DFSP are cutaneous soft tissue sarcomas that are locally aggressive, have high rates of local recurrence and low-malignant potential.¹² Surgical excision using the Mohs technique or a wide local excision to the deep fascia is the preferred management procedure and leads to eradication of the tumour.¹³

In summary, we believe this case is instructive in demonstrating how obtaining an adequate sample is crucial to arrive at the correct diagnosis and also how insufficient skin biopsy can have important clinical consequences. Clinicians should have a low threshold to biopsy when lesions appear different. Finally, this report confirms the importance of clinicopathological correlation, especially in cases that do not add up.

Learning points

- ▶ Insufficient skin biopsy can have important clinical consequences.
- ▶ Clinicians should have a low threshold to biopsy when lesions appear different.
- ▶ This report confirms the importance of clinicopathological correlation, especially in cases that do not add up.

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