A Rapidly Growing Epidermal Cyst Caused By a Punch Biopsy

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Abstract

Punch biopsy is a widely used diagnostic tool in dermatopathology, known for its safety and efficacy. However, complications, though rare, can occur. This report presents a unique case of an epidermal cyst developing rapidly after a punch biopsy, highlighting an uncommon but significant complication.

Keywords: Dermatopathology • Biopsy • Skin diseases • Intradermal nevus • Epidermal cysts

Introduction

Punch biopsy plays an important role in dermatological diagnostics, offering a minimally invasive method for histopathological examination of cutaneous lesions. Complications associated with punch biopsy are infrequent and typically minor, such as delayed wound healing and temporary discomfort. However, more severe outcomes can occur, including infections and, rarely, misdiagnosis due to sampling errors [1, 2]. We report an uncommon complication following a punch biopsy procedure, an epidermal cyst formation and aim to shed light on this potential complication.

Case Report

A 42-years-old male with no significant medical history presented with a dome-shaped papule on his philtrum. Considering the appearance and location of the lesion, a 3 mm punch biopsy was performed. During the procedure, the patient made an abrupt, jerky movement, causing the blade to withdraw and then be inadvertently reinserted a short distance from the initial site. Despite this unexpected event, the post-procedure wound appeared normal, without immediate signs of infection, excessive bleeding, or other commonly observed complications (Figure 1).

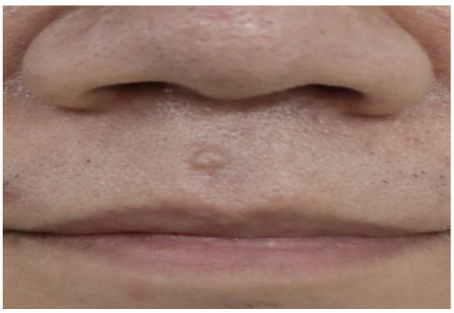

Figure 1. Pre-biopsy photograph showing a dome-shaped nodule on the philtrum.

Histopathology confirmed the presence of an intradermal nevus without atypical features. Four months post-biopsy, the patient presented with a noticeable growth at the biopsy site (Figure 2) which prompted concerns over potential malignancy given the speed and character of the growth. A complete excision of the lesion was performed, and surprisingly, histopathological analysis not only reconfirmed the presence of remnant intradermal nevus but also revealed an epidermal cyst situated 2.8 mm from the epidermis, deep to the scar tissue (Figure 3A). We suspect that the reinsertion of the blade caused the implantation of epidermal tissue in the subcutis, leading to the formation of the epidermal cyst since the initial punch biopsy was performed at a depth of 3 mm (Figure 3B) was discharged on just wound care and hydrocolloid dressing (Duoderm) every three to four days. The prognosis of slow healing over months and possible recurrence were explained to her. The surgical staff and her caring teams were clearly informed of the adverse consequences of surgical incision, debridement and cannula insertion and were advised gentle superficial mild debridement for slough if required in the future. Unfortunately, and after discharge the patient visited 2 hospitals, and she didn't follow the instructions of the regular wound care ending up in recurrence of pathergic reactions, deep ulcerations along with superadded infections in the abdomen as well as upper and lower limbs. All the previous wounds and surgical interventions were complicated by very low Haemoglobin of 6.8 (g/dL) [3]. A general decision between all treating teams in all the hospitals was made to change the biologic agent. The Patient was admitted again and same measures taken includes systemic steroids, cyclosporine, intra lesional steroids, daily dressing, frequent wound swabs, topical steroids and frequent monitoring of her vital signs and routine investigations. While awaiting the approval of Ustekinimab (the new elected biologic agent) she received Anakinra 100 mg subcutaneous twice daily for a week then once daily for another week without any added benefits. With Ustikinumab the patient started to show response except for the regular pseudomonal nosocomial infection which complicated the condition with frequent abscess formation [4]. A Right Femoral Venous Catheter (FVC) was placed by injecting intra-lesional triamcinolone and hydrocortisone in circular manner around the insertion point to avoid pathergy. IV antibiotics, IV iron and blood transfusion started. Systemic steroids were tapered slowly and she was started on a maintenance dose of colchicine 500 mg twice daily. All abscesses were drained using small incisions and superficial debridement along with daily wound care continued. The wounds were washed with 10% acetic acid to eradicate *pseudomonas*.

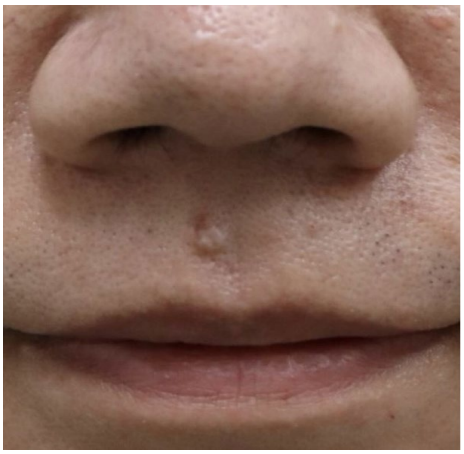

Figure 2. Four months post-biopsy photograph showing rapid regrowth of the lesion.

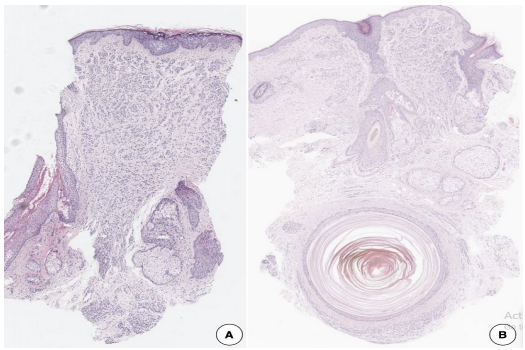

Figure 3. A side-by-side comparison of initial punch biopsy and excisional biopsy slides (H&E, 40x). 3a) The initial punch biopsy sample measures approximately 3 mm in depth. 3b) An epidermal cyst is visible 2.8 mm from the epidermis, deep to the scar tissue.

Discussion

Punch biopsies are generally considered safe, with minimal risk of significant complications. However, there are sporadic reports of epidermal cysts developing after procedures that involve skin penetration, including punch biopsies. These reports highlight that even controlled, minimally invasive procedures can lead to unintended outcomes, such as the implantation of epidermal tissue. The rarity of these occurrences should not diminish their importance in clinical practice. This case report underscores the potential for epidermal cyst formation following a punch biopsy and emphasizes the need for clinicians to consider this in their differential diagnosis after a biopsy procedure shows unusual post-procedural growth.

Conclusion

Biologic and conventional immunosuppressive agents, and antibiotics are considered as second line therapy in PG and it used patients that have not responded to first line management. A variety of biologic agents such as infliximab, adalimumab, etanercept, certolizumab and golimumab has been used and patient exhibit improvement dramatically when combined with other systemic therapy [5]. Conventional immunosuppressive agents such as mycophenolate mofetil, methotrexate, and azathioprine have been used in treatment of PG. in addition, antibiotics, such as dapsone and minocycline, also showed a role in treatment of some case of PG. Dapsone has been avoided in our case as it increased risk of drug induced hemolytic anemia when used in G6PD cases. Moreover, growing research and trials have yielded successful management results with new agents such as Ustekinumab, Canakinumab, and Anakinra. The success in management using ustekinumab was demonstrated in six refractory Pyoderma gangrenosum patients followed up in an Australian health institution located in Monash, Melbourne. The authors report an effective and safe treatment profile with no adverse reactions recorded [6].

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