JPSIM Journal of Pakistan Society of Internal Medicine

Case Report

Idiopathic Epidermoid Cyst of the Hand: A Case Report and Literature Review

Aroosa Zia,[1] Irtiza Tariq,[2] Maryam Akhtar,[2] Nabeel Ahmed[1]

[1]Ihsan Mumtaz Teaching Hospital, [2]Arif Memorial Teaching Hospital

Abstract

Epidermoid cysts are benign keratin-filled lesions that commonly occur on the face, neck, and trunk. However, their occurrence in atypical locations such as the hands can present with diagnostic challenges. We present an uncommon case of a 56-year-old man with an idiopathic epidermoid cyst located on the ventral side of the left fourth finger. The 3 × 3 cm lesion persisted for 30 years, causing discomfort, limited mobility, and secondary interdigital fungal infection. The diagnosis was confirmed by excisional biopsy. Surgical excision under wrist-block anesthesia was performed, followed by postoperative care, including wound management, antibiotic therapy, and rehabilitation. This case study elucidates the uncommon location of epidermal inclusion cysts and underscores the significance of histopathological examination. Furthermore, it emphasizes the importance of thoroughly examining the cyst epithelium to ensure complete removal of the capsule and exclude any potential underlying pathology. Early diagnosis and intervention can prevent the development of complications and improve patient outcomes.

Keywords: Epidermoid cyst, atypical presentation

How to cite this:

Zia A, Tariq I, Akhtar M, Ahmed N. Idiopathic Epidermoid Cyst of the Hand: A Case Report and Literature Review. J Pak Soc Intern Med. 2025;6(3): 291-293

Corresponding Author: Dr. Aroosa Zia **Email:** aroosazia@gmail.com

Received: 14-03-2025 **Revised:** 12-04-2025 **Accepted:** 30-07-2025

DOI: https://doi.org/10.70302/jpsim.v6i3.2555

Introduction

An epidermoid cyst is a benign, keratin-filled lesion that develops from ectodermal tissue made up of a thin layer of squamous epithelium, predominantly occurring on the face, neck, and trunk. While these cysts can manifest in various anatomical locations, their appearance at atypical sites can pose diagnostic challenges and may prompt consideration of differential diagnoses. The hand, a region characterized by intricate anatomical structures and high functional demands, is an unusual site for epidermoid cysts. Other unusual locations include the gingiva of the mouth, tongue, sole of the foot, labia majora, labia minora, and clitoris. It exhibits a slow growth pattern and a linear morphology, complicating diagnosis due to the onset of symptoms that arise primarily when they irritate adjacent vascular and neurological tissue. The occurrence is more in adulthood and common in the male gender.

The major cause of epidermoid cysts is implantation of the epithelium due to repeated trauma. However, this case report aimed to describe a rare occurrence of an epidermoid cyst in the hand that appeared without any identifiable cause, highlighting the varied presentation of epidermoid cysts and emphasizing their consideration in the differential diagnosis of hand masses. Ultimately, this study emphasizes the need for awareness of their potential atypical presentations in clinical practice.

Case Report:

Shahnawaz, a 56-year-old man, visited the outpatient department (OPD) with a primary complaint of swelling on the ventral aspect of the left fourth phalanx, which had persisted for 30 years. He observed that the swelling was initially pea-sized, but gradually increased over the past three years. This increase in size resulted in irritation, restricted movement of the phalanx and wrist, and the development of interdigital fungal infection. The patient reported that the swelling was associated with pain which was gradual in onset, characterized as

moderate intensity and non-radiating. There was no history of trauma to the affected site, and the underlying cause remained unclear. The patient's occupational history did not correlate with the diagnosis. During the clinical examination, a firm, smooth, mildly tender, and immobile swelling measuring 3x3cm was noted, with no signs of a central punctum, and it was non-compressible.

There was no significant medical or surgical history, and the patient denied any history of immunocompromised states or chronic diseases, such as diabetes mellitus, hypertension, tuberculosis, asthma, or malignancy. Differential diagnoses included lipoma, ganglion cyst, foreign-body granuloma, and giant-cell tumor of the tendon. Radiography was conducted to exclude the possibility of foreign objects and to assess bone involvement. (figure 2) An excisional procedure was performed under wrist-block anesthesia and an arm tourniquet (figure 1a). The cyst was successfully excised (figure 1b) and an appropriate dressing was applied postoperatively. Histological examination confirmed this diagnosis. Histopathological examination revealed a covering of stratified squamous epithelium featuring a granular layer and keratin organized in a lamellar configuration. Following surgery, the patient experienced a notable improvement in his range of motion, and his pain diminished.

Figure 1A: *Epidermoid cyst on the ventral side of base of 4th phalanx; preoperatively*

Epidermoid cysts and epidermal inclusion cysts are frequently occurring non-cancerous skin cysts. They develop from blocked pilosebaceous follicles or traumatic migration of epidermal cells into the dermis. Other causes may also include residual ectodermal tissue during embryogenesis, Human Papillomavirus (HPV), Gardner syndrome , and surgical trauma, post percutaneous needle fasciotomy, and a complication of Carpal Tunnel Syndrome. Common sites of presentation include the face, the base of the ears, and the trunk.[1,3,4] They have also been found in the gluteal region,[7,8,9] the foot,[3,5] perineum, forearm[1] and middle phalanx.[10] However, epidermal cyst examination findings without a history of trauma are rare.

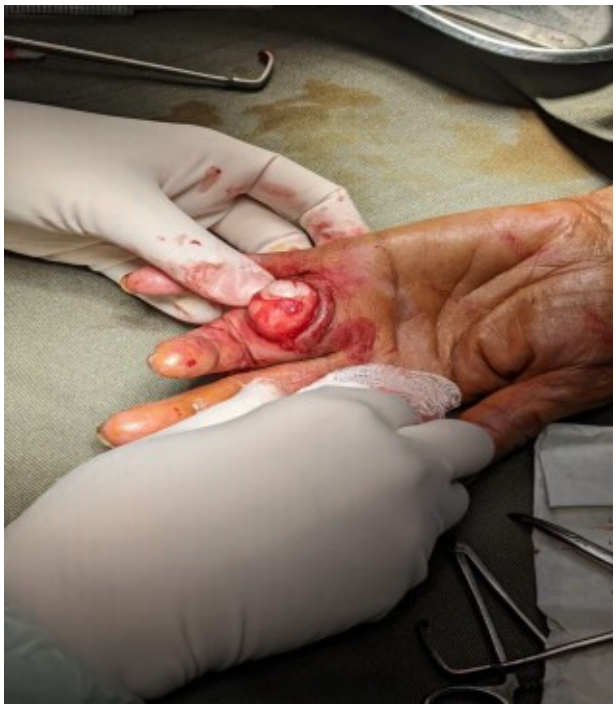

Figure 1B: *Intra-operative picture of epidermoid cyst excision on hand*

Typically, the diagnosis of epidermoid inclusion cysts can be confirmed through a combination of patient history involving related trauma and physical examination, because these cysts often occur in specific locations Physical examination revealed a firm, flesh-colored cystic swelling, non-transluminant, and a negative slip test result with no skin fixity. Radiography is often inconclusive, an X-ray cannot show cystic swelling; therefore, ultrasound was needed to detect the cystic or solid nature of this swelling. Ultrasonography is used to define the architecture of soft tissues; therefore, it is rarely required to guide treatment. When sufficient keratin or sebaceous material is available for cytological examination, fine-needle aspiration cytology (FNAC) can be beneficial. The definitive diagnosis is established through histopathological analysis of the cystic lesion. It is crucial to differentiate hand epidermoid inclusion cysts from other conditions such as ganglions, giant cell tumors of the tendon sheath, lipomas, and swelling related to bones or joints.

Surgical intervention is necessary only for cysts that present with symptoms, as most dermoid cysts in the hand are benign. Surgery is typically performed when symptoms such as impaired mobility of the hand, ulceration, and discomfort arise, especially following a rapid increase in cyst size. As these symptoms were present, the swelling was excised under wrist block. The use of tourniquets or anesthesia would have caused the outcome to remain static.[11]

Figure 2: *X-ray of the patient with AP and lateral view showing no bony involvement.*

Conclusion

Although benign, epidermoid inclusion cysts can cause significant discomfort and functional impairment when they are located in areas such as the phalanx. This case report emphasizes the need for a thorough clinical evaluation and appropriate surgical management of such lesions, particularly when they interfere with daily activities or cause secondary complications. Early diagnosis and intervention can prevent the development of associated problems and improve patient outcome.

Conflict of Interest: *None*

Funding Source: *None*

Authors' Contribution

AZ: Conception

IT, MA: Design of the work

NA: Data acquisition, analysis, or interpretation

IT, MA, NA: Draft the work

AZ: Review critically for important intellectual content

All authors approve the version to be published

All authors agree to be accountable for all aspects of the work

References

1. Kim CS, Na YC, Yun CS, Huh WH, Lim BR. Epidermoid cyst: a single-center review of 432 cases. Arch Craniof Surg. 2020;21(3):171-5.
2. Trivedi R, Trivedi P, Gupta R. Giant epidermoid cyst of the posterior fossa. Cureus. 2022;14(1):e20923.
3. Trinh CT, Nguyen CH, Chansomphou V, Chansomphou V, Tran TT. Overview of epidermoid cyst. Eur J Radiol Open. 2019;6:291-301.
4. Bustamante G, Cedeño A, Perez L, Parra E, Angulo C. Epidermoid Cyst in an Unusual Location: A Case Report. Int J Scient Res Dental Med Sci. 2020 Sep 1;2(3):92-6.
5. Breidung D, Delavari S, Megas IF, Billner M, Reichert B. Epidermoid Cysts after Percutaneous Needle Fasciotomy for Dupuytren Contracture: Literature Review. Plastic Reconst Surg–Global Open. 2024;12(5):e5786.
6. Park HY, Sur YJ, Kim YV. Epidermal inclusion cyst after carpal tunnel release: a case report. J Wrist Surg. 2016;5(01):067-70.
7. Houdek MT, Warneke JA, Pollard CM, Lindgren EA, Taljanovic MS. Giant epidermal cyst of the gluteal region. Radiol Case Rep. 2010;5(4):476.
8. Low SF, Sridharan R, Ngiu CS. Giant epidermal cyst with intramuscular extension: a rare occurrence. Case Rep. 2015;2015:bcr2013202534.
9. Vincent LM, Parker LA, Mittelstaedt CA. Sonographic appearance of an epidermal inclusion cyst. J Ultra Med. 1985;4(11):609-11.
10. Makkar D. An unusual location of an epidermoid cyst, the middle phalanx of the middle finger: A case report. 2022; DOI: https://doi.org/10.21203/rs.3.rs-1469449/v1
11. Uludağ A, Tosun HB, Yasar MM, Gunay A, Turk BA, Uludağ Ö. The effect of tourniquet usage and anesthesia method on prognosis in the treatment of dorsal wrist ganglion cysts by open surgery. Cureus. 2019;11(10):e5981.