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Case report

Malignant transformation of a giant epidermal cyst in the gluteal region–A case report

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Abstract

Epidermal cysts are common cutaneous lesions, and a giant epidermal cyst is defined by its size being greater than 5 cm in diameter. The buttock is an unusual site for an epidermal cyst to occur, and the malignant transformation of an epidermal cyst is an exceedingly rare phenomenon. Clinicians should be vigilant of such an occurrence, especially in instances of a giant epidermal cyst, despite seemingly benign imaging findings. The long-term outcome of surgery for such tumors remains uncertain.

Keywords: Carcinoma, cell transformation, epidermal cyst, neoplasia, squamous cell.

Case report

A 40-year-old Malay woman with underlying childhood asthma presented with pus discharge over the right gluteal region near the spinous process, which had persisted for a week. She had a long-standing right gluteal swelling for 19 years but was otherwise asymptomatic. She was given oral antibiotics, and further investigation was done for the swelling because of its large size, which occupied the entire right upper quadrant of the gluteal region. Magnetic resonance imaging (MRI) of the right gluteal revealed a well-demarcated mass with a clear fat plane between the mass and the underlying muscle **(Figure 1).** The features were suggestive of a giant epidermal cyst, and an excision biopsy of the epidermal cyst was planned; however, she was not agreeable to surgery and defaulted on her subsequent follow-up visits.

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The woman presented again after one year, complaining of pus discharge at a different site over the right gluteal swelling, which was associated with pain and fever. Part of the gluteal swelling was ruptured with purulent discharge one week before presentation. There was no associated history of trauma or an insect bite over the swelling. Furthermore, there were no constitutional symptoms over the past year. Clinical examination revealed a large right gluteal mass measuring 9 × 22 × 10 cm extending to the midline with indurated skin. Two skin defects were observed over the mass, and both had a seropurulent discharge. Preoperative blood investigation was unremarkable, and she was admitted for wound debridement and excision of the gluteal swelling.

The procedure was performed under spinal anesthesia, and abundant seropurulent discharge with cheesy material was encountered upon skin incision, which was foul-smelling. The cyst wall **(Figure 2)** was excised after debridement. Multiple feeding vessels were identified and ligated during the cyst wall removal. Complete excision of the cyst wall was performed, and the infected part of the cavity was laid open, and the surrounding healthy skin was approximated. The woman was subjected to daily dressing of the wound and was discharged on postoperative day 2.

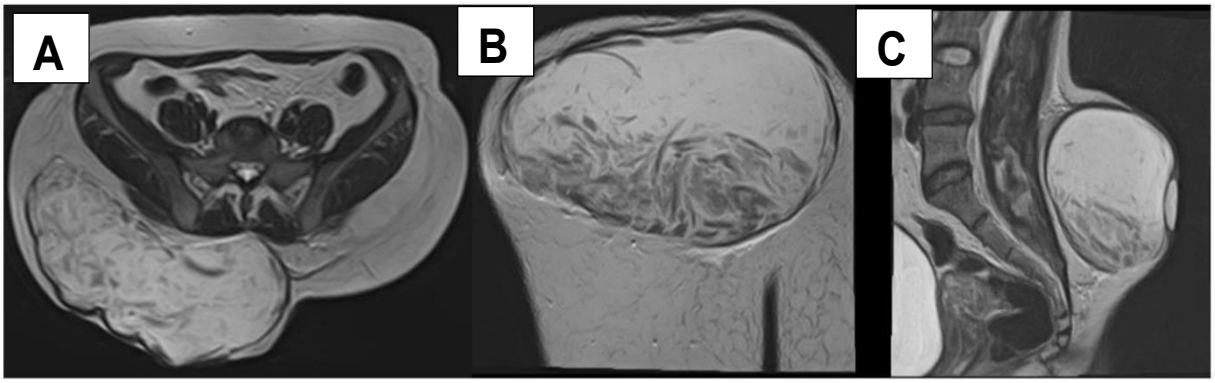

Figure 1. (A) axial, **(B)** coronal, **(C)** sagittal. MRI T2 weighted image of right gluteal giant epidermal cyst shows a hypointense, large well demarcated mass with hypointense filiform debris within the dependent region of the mass suggestive of giant epidermal cyst.

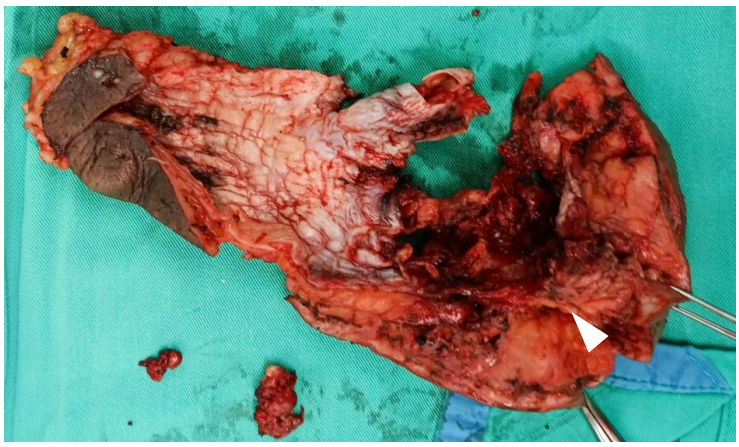

Figure 2. Part of the excised epidermal cyst wall showing whitish surface with focal area of necrosis (white arrowhead-ruptured segment).

At the 2-week follow-up visit, the wound cavity exhibited healthy granulation tissue surrounded by good wound healing of the approximated skin. **(Figure 3).** The histopathology report revealed that part of the huge cyst wall demonstrated well-differentiated squamous cell carcinoma **(Figure 4).** Further history and examination showed no symptoms or signs of distant or regional lymph node metastasis. The woman also denied any family history of malignancy. A staging computed tomography scan was performed postoperatively and revealed no obvious lymph nodes or metastasis.

In view of the malignant histopathology, a wide local excision of the wound was performed about a month after the initial surgery. Fibrotic and granulation tissues were encountered intraoperatively with no hard masses or nodules documented. Histopathology examination showed the presence of residual well-differentiated squamous cell carcinoma with margins that were free of malignancy. During 2 years of follow-up, there was no clinical evidence of tumor recurrence.

Epidermal inclusion cyst is the most common cutaneous cyst that can be found anywhere in the body, but is typically seen in the scalp, face, neck, trunk, and back. It accounts for approximately 85.0% of all excised cysts.[1] They are considered giant epidermal cysts when the diameter is greater than 5 cm.[2] Common etiologies thereof include sunlight-damaged skin and acne vulgaris. The buttock is an unusual site for epidermal cysts, and epidermal cysts that occur at unusual sites are postulated to be caused by trauma or iatrogenic injuries.[3] They are mostly solitary skin lesions, and multiple cysts may be associated with a hereditary condition such as Gardner syndrome.[3]

Clinically, epidermal inclusion cysts are usually asymptomatic and appear as a firm, skin-colored dermal nodule.[1] Furthermore, it can be infected and present acutely as a tender swelling with pus discharge if ruptured. Otherwise, this mundane skin lesion has an indolent course, and many patients do not seek further medical attention.[2]

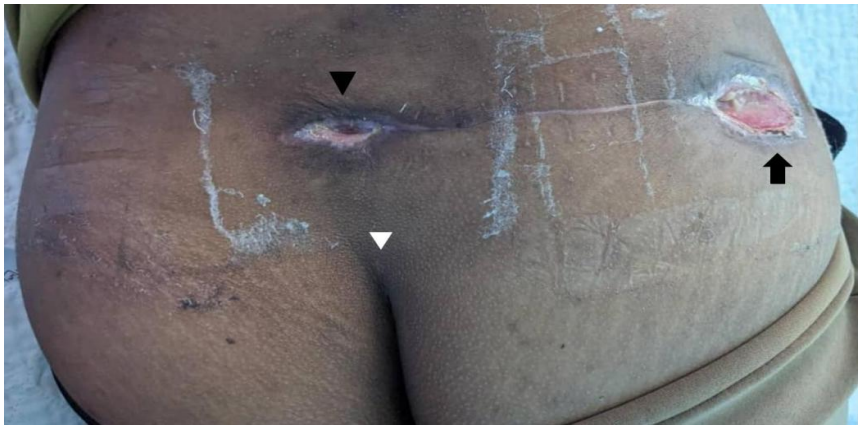

Figure 3. Post-operative wound. (Black arrowhead showed the previous ruptured site; white arrowhead demonstrates the natal cleft; black arrow shows the superolateral wound edge).

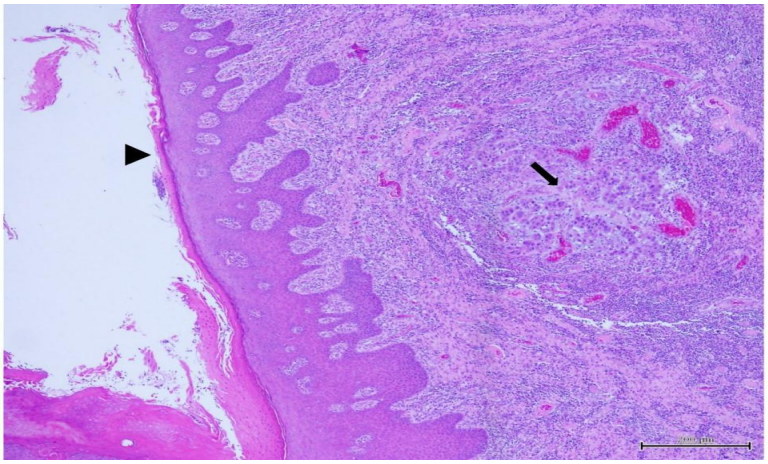

Figure 4. The dermis shows the cyst wall (black arrowhead) and cluster of malignant squamous cells (black arrow) in a low magnification (x4/20x).

Malignant transformation is rare in epidermoid cysts, limited to only a couple of case reports.[1] Here, we present a case of the malignant transformation of an epidermal cyst arising from the gluteal region.

Discussion

The incidence of squamous cell carcinoma developing from an epidermal inclusion cyst has been estimated to be 0.01%–0.05%. This malignant transformation appears to have increased since 2010, which may contribute to the increased reporting thereof.[4] The pathophysiology of malignant transformation is poorly understood, and one postulation is that prolonged chronic inflammation in long-standing lesions promotes malignant transformation.[1]

The treatment for epidermal cysts is surgical excision, but exceptions include cases of giant epidermal cysts, which indicate further imaging studies. Ultrasound has been suggested as a cheap and easily available modality to assess the lesion. The typical features of an epidermal cyst on ultrasound include an oval shape, clear demarcation, and subcutaneous location with dermal attachment. Echogenicity may vary depending on the contents, amount, and arrangement of keratin debris.[5] In the case of our patient, MRI was the imaging of choice because of the patient's body habitus and location of the cyst, which made the demarcation of the lesion with underlying structures challenging with ultrasound **(Figure 5)**.

There was no clear consensus on the best management for this lesion because of the scarcity of information regarding the clinical course of this condition. Wide local excision with 4–6 mm margins has been suggested by some studies.[5] Moreover, in most situations, such as the case being discussed, the malignant transformation is reported retrospectively via histopathological analysis following excision of the presumed epidermal cyst.[5]

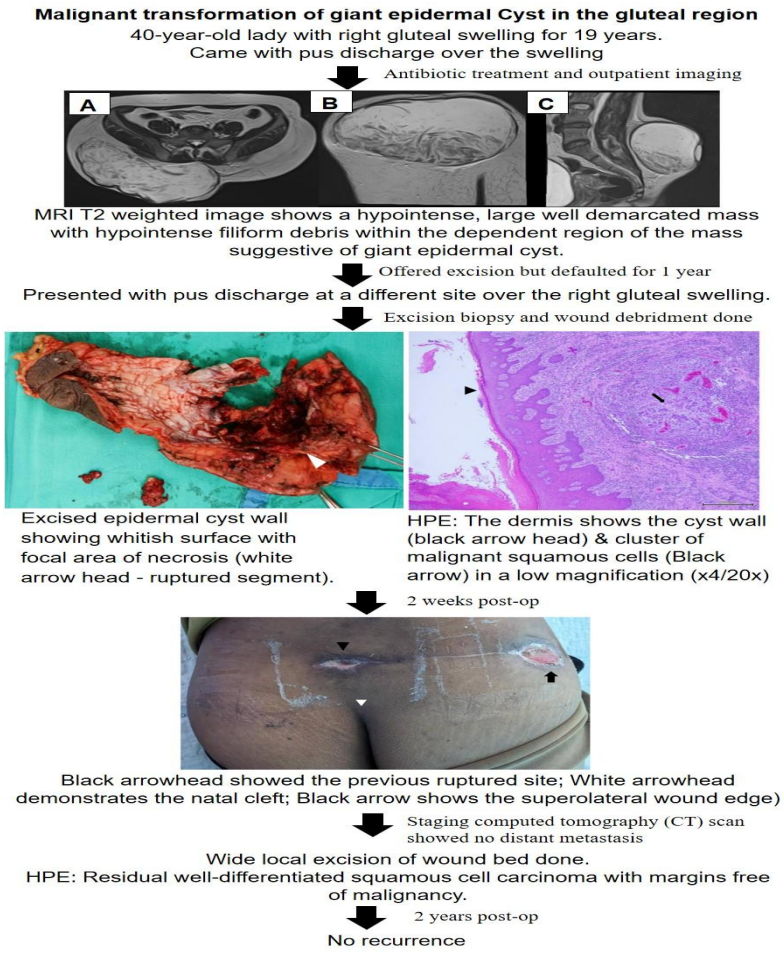

Figure 5. Malignant transformation of a giant epidermal cyst in the gluteal region.

The long-term outcome of such lesions after surgical excision remains uncertain. The recurrence rate for epidermal cysts has been reported to be 3.0% even after complete resection. In the study by Bauer and Lewis, recurrence with malignant transformation of epidermal cysts will most likely be of squamous cell carcinoma origin.[3] The success of surgery for squamous cell carcinoma depends on the tumor size and location, staging, completeness of resection, and patient factors. Metastatic disease often has a poorer prognosis.[6]

Conclusion

The malignant transformation of an epidermal inclusion cyst is an exceedingly rare condition. A giant epidermal cyst should raise suspicion of malignant transformation, as chronic inflammation is postulated to be the likely etiology of malignancy. Surgical excision remains the primary course of treatment, but the long-term outcome of surgery for such tumors remains uncertain.

Author contributions

OXZ and WMWM contributed substantially to the concept and design of this study, acquiring the data, reviewing the literature, and its analysis and interpretation. RAAH and LJW contributed substantially to acquiring the data. LJW and OXZ contributed to drafting the manuscript. WMWM edited the manuscript critically for important intellectual content. All authors approved the final version submitted for publication and take responsibility for statements made in the published article.

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Conflict of interest statement

All authors have completed and submitted the International Committee of Medical Journal Editors Uniform Disclosure Form for Potential Conflicts of Interest. All authors declare that they have no conflicts of interest.

Data sharing statement

Data sharing statement. Data generated or analyzed for the present report are included in this published article. Further details are available from the corresponding author on reasonable request after deidentification of the patient whose data are included in the report.

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