

An unusual presentation of epidermoid cyst in an adult male in India: A case report

Sanjeev Dua¹, Anil Dhar¹, Hershdeep Singh², Amitabh Goel¹, Saurabh Mahajan¹, Priyanshi Srivastava¹

From ¹Department of Neurosurgery, Max Hospital, Patparganj, New Delhi, ²Department of Neurosurgery, Fortis Hospital, Ludhiana, Punjab, India

ABSTRACT

The epidermoid cysts are true cysts that are often found in the face and less commonly in the trunk and back of the human body. These cysts often have a predilection toward the male gender with the third and fourth decades of age group. They generally arise from the follicular infundibulum, primarily due to plugging of the follicle. Often a part of genetic syndromes, they can also be post-traumatic where the ectodermal cells get stuck or reimplanted. Epidermoid cysts are often a slow-growing and painless lesion with few exceptions. The proper neurological examination, clinical examination, and investigations such as magnetic resonance imaging help in confirming the diagnosis and proceeding with the management. Clinically, epidermoid cysts may or may not present with the neurological impairment. The preferred intervention is total or subtotal resection with minimal chances of complications such as recurrence, swelling, and infection. However, these can very well be avoided by regular follow-up assessments. The clinical presentation in the lower back with massive dimensions is relatively uncommon, and therefore, authors have presented here an unusual case from the outpatient department of neurosurgery, where the patient presented with a large, soft, exophytic lesion at the level of (S4/S5), which gave rise to the suspicion of meningocele and meningomyelocele, but after complete local assessment and radiological investigations, it was diagnosed finally as an epidermoid cyst. Keeping in mind, the clinical profile, socioemographic factors, and metabolic profile, the intervention of surgical total resection was planned, and the patient was managed.

Key words: Epidermoid, Meningocele, Meningomyelocele, Sacrum

The epidermoid cyst, also known as a sebaceous cyst, is the name given to a benign encapsulated, subepidermal nodule filled with keratin material. They are most commonly located on the face, neck, and trunk but not exclusively. In reality, they can be found anywhere including the scrotum, genitalia, fingers, and buccal mucosa. Epidermoid cysts are the most common cutaneous cysts accounting for nearly 79% [1]. They are mostly benign, with only a 0.011–0.045% chance of malignant transformation to squamous cell carcinoma [2]. Most of the cases of epidermoid cysts are sporadic and can have syndromic occurrence. Epidermoid cysts rarely occur before puberty and are commonly found in third and fourth decades of life. Epidermoid cysts are commonly seen in autosomal dominant syndromes such as Gardner and Lowe syndromes [3,4]. Epidermoid cysts are lined with stratified squamous epithelium that results in the accumulation of keratin within the subepidermal layer. They may also be post-traumatic, by implantation of the epithelium [5].

Histopathological examination reveals an epithelial-lined cyst filled with keratin in the dermis [6]. Thus, epidermoid cysts are congenital and are formed out of aberrant ectodermal cells. These ectodermal cells become trapped during embryogenesis between the 3rd and 5th gestational weeks. This results in the formation of pearly lesions that are lined by stratified squamous keratinized epithelium.

On clinical examination, facial epidermal cysts are easy to diagnose; however, the epidermoid cysts affecting the truncal region can often be misdiagnosed as meningocele or meningomyelocele. Magnetic resonance imaging (MRI) is the gold-standard investigation that helps the confirmation and distinguishes the diagnosis. The management of the epidermoid cyst is simple excision (total or subtotal resection) under general anesthesia and most of the time does not have any complications. Usual complications include the recurrence, repetitive swelling, and infection of the cyst. The overall prognosis of the epidermoid cyst is good.

The existing research evidence describes the usual and more common presentation in the face. Here, we present a case from north India, where patient presented to us in the department of

Access this article online

Received - 19 June 2023
Initial Review -21 June 2023
Accepted - 10 July 2023

DOI: 10.32677/ejms.v8i2.4115

Quick Response code



Correspondence to: Dr. Hershdeep Singh, Department of Neurosurgery, Fortis Hospital, Ludhiana, Punjab, India. E-mail: singh.hershey@gmail.com

© 2023 Creative Commons Attribution-NonCommercial 4.0 International License (CC BY-NC-ND 4.0).

neurosurgery, with the involvement of lower back with rather uncommon dimensions of the epidermoid cyst.

CASE REPORT

A 41-year-old male presented to us in the outpatient department of neurosurgery with a history of swelling in the lower back region for the past 3 years. The patient ignored the swelling in the initial stages. It was after a period of 2 years that the swelling became bothersome due to its rapid progression. The patient provided a history of drastic increase in the size of the swelling in the past 2 years. There was no significant positive history of trauma, infection, or surgery. The patient was generally healthy with no history of chronic diseases such as tuberculosis, diabetes mellitus, or hypertension. The neurological examination of the patient revealed no significant abnormality. The power and tone were normal in all the limbs with no sign of paresis. Patient's general physical examination did not reveal any significant positive findings. Patient's vitals were stable.

However, on local examination, a sessile mass lesion is seen over the sacrum in the globular shape in the region just above the natal cleft corresponding to the S4-5 region (Fig. 1). The swelling was globular, with intact skin, no discharging sinuses or dilated veins, with little to no hair. The swelling was soft, non-tender, compressible, and non-fluctuant on palpation. The swelling was about 7 cm in the craniocaudal and 5 cm in the anteroposterior direction.

During the investigations, contrast MRI of the lumbosacral spine revealed a well-defined oval-shaped lesion measuring $6.8 \times 5.8 \times 3.8$ cm (CC \times TR \times AP) at the level of S4-S5 vertebral body protruding outside with no evidence of internal communication showing a predominantly intermediate signal on T2 and hyperintense signal on T1 which on diffusion-weighted imaging (DWI) shows diffusion restriction. No significant enhancement of lesion is seen no apparent intraspinal involvement of the cyst (Figs. 2 and 3).

After the consent of the patient, complete clinical examination, routine investigations, and proper pre-anesthetic checkup patient was taken up for excision (total resection) of the mass lesion under general anesthesia. An elliptical incision was made, and a pultaceous material containing a $9.0 \times 7.0 \times 5$ cm lesion was excised in toto. The overlying redundant skin was excised as well. Primary closure of the operative site was done after ensuring no residual tissue. The depiction can be seen in Fig. 4a and b.

On histopathological examination, the microscopic appearance showed a uniloculated benign cyst lined by squamous epithelium with a prominent granular layer filled with lamellated keratin. Dermal appendages were not seen in the cyst wall. Fig. 5a and b demonstrate the histopathological description.

The patient was assessed post-operatively to ensure that there was no post-operative swelling or infection, and the patient was discharged in satisfactory condition from the ward. The patient was assessed on regular follow-up visits for any infection or



Figure 1: Patient presented with soft swelling in the region of S4-S5

recurrence of the cyst. There were no complaints reported by the patient in the follow-up visits.

DISCUSSION

The epidermoid cysts are the most common cutaneous cysts [1]. Epidemiologically, these cysts are rare before puberty, with a defined predisposition for males in the age group of third and fourth decades. The cysts generally arise from the follicular infundibulum, primarily due to the plugging of the follicle between the 3rd and 5th gestational weeks [7]. Although malignant transformation is rare, squamous cell carcinoma and basal cell carcinoma have been known to occur in some cases [2].

These cysts are commonly found in the face and trunk, as suggested by the review conducted by Kim *et al.* [8]. In the said review, 65% of the cases were found in the facial region and mere 34% comprised the involvement of back. As per clinical examination, a lesion that is a large mass over the lower part of the back is often confused with a meningocele, meningomyelocele, or sacrococcygeal tumor. In some cases, epidermoid cysts have also presented as large sacral mass lesions. In the case studies presented by Yeptho *et al.* and Pal *et al.*, there is documentation of a large mass lesion in the sacral region, which was diagnosed on clinical examination as an epidermoid cyst [9,10].

Our case study presentation definitely adds to the handful of literature present that comprises the epidermoid cyst presentation in the lower back with rather massive dimensions. The patient did not have any significant comorbidities and histopathological examination was correlated with the presentation described in the existing literature, i.e., histopathological examination showed a uniloculated benign cyst lined by squamous epithelium with a prominent granular layer filled with lamellated keratin, without any dermal appendages in the cyst wall. The neurological examination of the patient was also normal with no evidence of any abnormality in tone and power of the upper and lower limbs or any paresis/weakness.

Initially, as mentioned earlier, in an adult patient, with the said dimensions, suspicion of meningocele and meningomyelocele arose. MRI confirmed the diagnosis by showing a predominantly intermediate signal on T2 and hyperintense signal on T1 which on DWI showed diffusion restriction. Thus, the final diagnosis was made and management proceeded in the direction of epidermoid

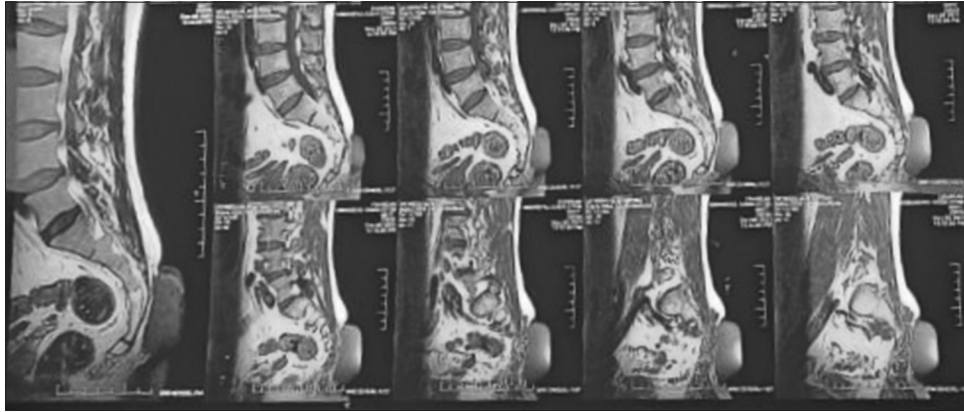


Figure 2: Contrast magnetic resonance imaging of LS spine

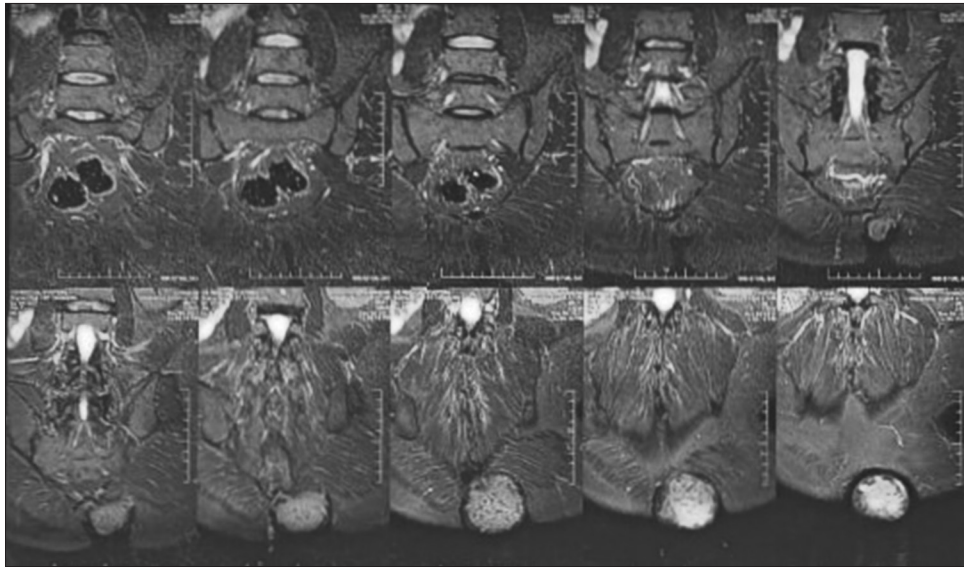


Figure 3: Contrast magnetic resonance imaging of LS spine

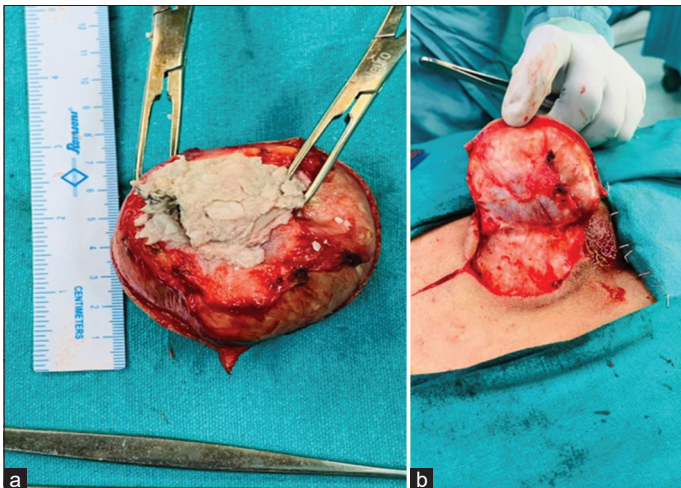


Figure 4: (a and b) Intraoperative picture

cyst. This case was managed using the total resection and the patient maintained well post-operatively.

Even though excision (total or subtotal resection) is the commonly preferred intervention by the treatment provider, authors would like to add that total or subtotal resection of the epidermoid cyst should be evaluated on the basis of the

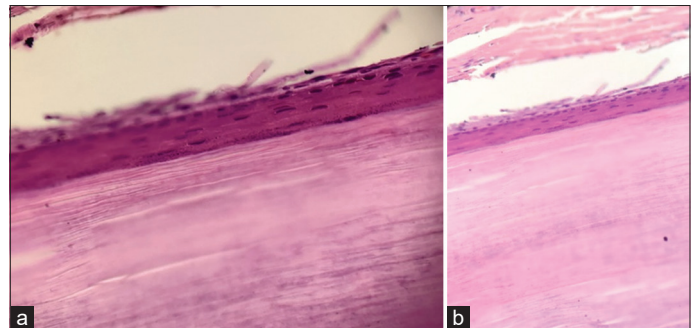


Figure 5: (a and b) H and E sections ($\times 10$ and $\times 40$) show a uniloculated benign cyst. The cyst is lined by squamous epithelium with prominent granular layer and is filled with lamellated keratin. Dermal appendages are not seen in the cyst wall

characteristics of the patient and clinical condition. There are multiple factors that rule and direct the intervention and management, such as the demographic profile, clinical parameters, and neuroradiological profile that affects the opted intervention. The patients with the higher age group have a relatively lower risk of recurrence compared to those belonging to a younger age group in the patients. It is also crucial to remember that the primary aim of the intervention and management should always be to avoid

any iatrogenic morbidity. Last but not the least, it is vital for the treatment provider to bear in mind that resectability is dependent upon the pre-operative neuroradiological parameters such as dimensions, size, and number of compartments. The relationship of epidermoid cysts with the adjacent neuroanatomical structures also has an impact on the management and prognosis.

CONCLUSION

A patient presenting to neurosurgery outpatient department with a large mass lesion over the lower back does present a diagnostic conundrum, especially in an adult patient. The reason is simple enough as it spontaneously bears to be the suspected meningocele, meningomyelocele, and a sacrococcygeal tumor. However, this case report highlighted that even though uncommon, epidermoid cyst can occur in the lower back region. A thorough pre-operative evaluation is always vital to reach the correct diagnosis and also to avoid any sudden surprises on the operating table. A giant sebaceous cyst over the sacrum or lower back may be confused with other medical conditions such as meningocele, meningomyelocele, and sacrococcygeal tumor. Definitive treatment is total or subtotal resection and regular follow-up is advised to look out for any infection/recurrence and swelling. The prognosis is often good and uncomplicated.

REFERENCES

1. Epstein WL, Kligman AM. Epithelial cysts in buried human skin. *AMA Arch Derm* 1957;76:437-45.
2. Chiu MY, Ho ST. Squamous cell carcinoma arising from an epidermal cyst. *Hong Kong Med J* 2007;13:482-4.
3. Koh KJ, Park HN, Kim KA. Gardner syndrome associated with multiple osteomas, intestinal polyposis, and epidermoid cysts. *Imaging Sci Dent* 2016;46:267-72.
4. Ikehara S, Utani A. Multiple protrusive epidermal cysts on the scalp of a Lowe syndrome patient. *J Dermatol* 2017;44:105-7.
5. Swygert KE, Parrish CA, Cashman RE, *et al.* Melanoma *in situ* involving an epidermal inclusion (infundibular) cyst. *Am J Dermatopathol* 2007;29:564-65.
6. Babu GR, Rao VM. A case report of epidermal cyst of the eyelid. *Int J Sci Res* 2015;4:1655.
7. Shet T, Desai S. Pigmented epidermal cysts. *Am J Dermatopathol* 2001;23:477-81.
8. Kim CS, Na YC, Yun CS, *et al.* Epidermoid cyst-a single center review of 432 cases. *Arch Craniofac Surg* 2020;21:171-5.
9. Yephtho HK, Kumar B, Gupta AK, *et al.* Giant sebaceous cyst over the sacrum: A case report. *Int J Sci Res* 2020;9:1021-2.
10. Pal N, Poonam D, Amit J, *et al.* Atypical manifestation of giant epidermal cyst over sacrum coccygeal region in elderly male. *Int J Surg Sci* 2022;6:135-7.

Funding: None; Conflicts of Interest: None Stated.

How to cite this article: Dua S, Dhar A, Singh H, *et al.* An unusual presentation of epidermoid cyst in an adult male in India: A case report. *Eastern J Med Sci*. 2023;8(2):41-44.