CASE REPORT

Spinal cord abscess secondary to infected dorsal dermal sinus in an infant: uncommon presentation of a known entity

Siddharth Vankipuram, Sushanta K Sahoo, Chittij Srivastava, Bal Krishna Ojha

Department of Neurosurgery,
King George's Medical
University, Lucknow, Uttar
Pradesh, India

Correspondence to
Dr Siddharth Vankipuram,
vanki.siddharth@gmail.com

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SUMMARY

Infection along the congenital dermal sinus tract is well known. However, congenital dorsal dermal sinus presenting with intramedullary abscess is quite rare. The sinus tract usually presents in the midline and acts as a portal of entry for infection that may manifest as meningitis, extradural or subdural abscess and may further involve the cord. Surgical drainage of pus and complete excision of the sinus tract is the standard treatment. Here we describe an infant with an infected congenital dorsal dermal sinus with atypical presentation as large paracentral abscess in the upper back. We further highlight the importance of recognising and treating these skin dimples even when clinically silent to avoid catastrophic complications.

BACKGROUND

Spinal cord abscesses have a similar aetiology as that of brain abscess with haematogenous spread from a cardiopulmonary source, the most common cause.¹ Contiguous spread from an infected dermal sinus may also present with intramedullary abscess with subdural and extradural component. Due to myelitis or mass effect from infected dermoid, they may present with varying degree of neurological deficit. This represents one of the grave complications of dermal sinus tract infection. The standard treatment is surgical excision with antibiotics. We are presenting here an infant with an infected dermal sinus initially misdiagnosed due to the large off midline abscess over the upper dorsal region.

CASE PRESENTATION

A 1-year-old male child with no prior tubercular contact or trauma presented to us with complaints of a swelling over the left upper dorsal region with intermittent fever for the last 2 months with a rapid increase in size for 7 days. The child had also developed weakness of the lower limbs for 3 days. There was a small dimple over the upper dorsal region since birth which was ignored by the parents as it was clinically silent. For these symptoms, the child was treated by a local physician with antibiotics. A neurologist was consulted only after the development of paraparesis after which a contrast MRI was advised and the child then referred to our centre.

At presentation, the child was febrile with lower limb power of 2/5. The tone in the lower limb was increased with exaggerated deep tendon reflexes.

The upper limb was normal on examination. On local examination, an abscess was found over the left upper scapula with pus pointing. There was no sinus opening or tuft of hair over the swelling (figure 1A).

Contrast MRI revealed an enhancing subcutaneous lesion extending from C5 to D6 level. In addition, there was extradural collection at D2 to D6 level with an intramedullary contrast enhancing lesion at C7–D2 level (figure 1B). A tract extending from the subcutaneous plane up to the cord was delineated at C7 level (figure 1C).

The child was operated with C6–D6 laminectomy. Copious amount of pus drained from the subcutaneous plane and extradural space. Myelotomy was performed at C7–D1 level and a thick wall abscess was excised. Postoperative period was uneventful and his lower limb power gradually improved. However, the pus culture did not grow any organism. Broad spectrum antibiotic was continued for 4 weeks. The histopathology of the tissue sample showed stratified squamous epithelium suggestive of dermal sinus. At 3 months follow-up, his lower limb power improved to grade 3/5 with near normal tone.

OUTCOME AND FOLLOW-UP

Postoperative period was uneventful and his lower limb power gradually improved. However, the pus culture did not grow any organism. Broad spectrum antibiotic was continued for 4 weeks. The histopathology of the tissue sample showed stratified squamous epithelium suggestive of dermal sinus. At 3 months follow-up, his lower limb power improved to grade 3/5 with near normal tone.

DISCUSSION

Embryologically, spinal congenital dermal sinus results from incomplete disjunction between neuroectoderm and cutaneous ectoderm.² The depth of the sinus tract reflects the extent of incomplete disjunction between these two germinal layers. In approximately 20% of these cases, the sinus tract ends blindly in the extradural space which probably is the relatively safe variety. The thoracolumbar region is the most common site for infected dorsal dermal sinus.³ However, if the tract communicates with the intradural compartment, then the risk of tethering, infection, meningitis and further neurological deterioration increases. Therefore, early

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Figure 1 (A) Image showing abscess in the left suprascapular region with pus pointing (red arrow). (B) Contrast MR image showing the subcutaneous pus collection (orange arrows) with extradural (blue arrows) and intramedullary component (yellow arrow). (C) MR axial image showing the sinus tract (yellow arrows) connecting the subcutaneous component with the intramedullary component of abscess.

surgical excision of the sinus tract is to be considered even in asymptomatic cases to prevent further complications of sinus tract infection and tethered cord syndrome in future.

The sinus tract may be associated with other congenital anomalies like meningocele or lipomenocele. The dimple or sinus opening usually presents in the midline. In our case, the child develops an abscess over the left scapular region and so was initially treated by a local physician with antibiotics only. It was only after the onset of lower limb weakness that the involvement of neural structures was suspected and MRI was advised. The radiology then confirmed the presence of a dorsal sinus tract with intramedullary abscess.

Bacterial colonisation of the sinus tract may lead to early and late myelitis that progress in a similar manner as that of brain abscess.¹ There are only few cases of intramedullary abscess resulted from infected dermal sinus reported in literature. Most of them present in the paediatric age group.² Clinically, they may present with fever and features of meningitis but in its severe form it may produce serious neurological deficit. Complete excision of the sinus tract with the abscess along with antibiotics as per the pus culture and sensitivity is the standard treatment. But in our case, the patient had received broad spectrum antibiotics for a long duration prior to surgery and probably was the reason why the pus drained from abscess did not grow any organism. We further continued intravenous antibiotics for 4 weeks in the postoperative period. Even with early surgical treatment and long-term antibiotics, most patients reported had residual neurological deficit.^{1,4}

This case report serves to highlight the importance of recognising midline skin dimples present at birth. As Jindal *et al* and Mete *et al* have noted, dimples present above the intergluteal fold in the midline should be treated with a high index of suspicion.^{5,6}

Even paramedian dimples should be examined thoroughly. Cox *et al* reported a case of a 7-year-old girl with two paramedian dimples and history of recurrent paraspinal soft tissue abscesses managed previously by general surgeons.⁷ The patient never had meningitis or intradural abscess due to which neurosurgery consultation was deferred. MRI and then later surgery helped to confirm the diagnosis of tethered cord and intradural epidermoid cysts.

Many of these patients have normal neurological examination and normal radiological studies. Therefore, we suggest that all dorsal dermal sinus tracts extending beyond the duramater has to be excised as early as possible to avoid future complications. Proper counselling and education of parents can also help prevent many of the associated catastrophic complications.

Learning points

- ▶ Spinal congenital dermal sinus can rarely present as off midline abscesses.
- ▶ Spinal cord abscess follow a progression similar to brain abscess.
- ▶ Complete excision of the abscess and sinus tract is recommended.

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