Case Report

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A Case of Tubercular Intramedullary Abscess in An Infant

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Spinal abscess in pediatric age group is a rare entity. Tubercular type is even rarer and it has been found to be associated with patent dermal sinus. Very few cases have been reported so far.

We present a 2-month-old baby with gradually progressing paraparesis. There was a small dermal sinus in the lower area of right buttock which was discharging pus. MRI was done which showed intramedullary fluid collection at the level of lower lumbar and sacral spine suggesting abscess formation. Patient party was suggested for surgical exploration and histopathological evaluation. However, they denied and thus baby was put on steroid therapy. The baby gradually improved. However he started having paraparesis again and even worse than before. Repeat MRI showed intramedullary collection more than the previous MRI. Again surgical option was given and finally surgery done. Right hemilaminectomy was done from L3-4-5-S1and dura exposed. Dura was incised and spinal cord, conus and cauda equina exposed which were swollen and congested. Midline myelotomy was done opening the intramedullary. Free flow of thick pus was observed. Dermal sinus was excised and closed.

Pus and small pieces of granulation tissue was sent for culture and cytological examination which showed features of tuberculosis. Antitubercular treatment was started and the baby became much better.

Key Words: intramedullary spinal abscess, surgery, tuberculosis

Spinal intramedullary abscess (SIA) is a rare entity. About 100 cases have been described so far. It is rarer in children. It is more so with tubercular type.[2] Our case was just 2 months old when first presented and the symptoms started when he was just a new born baby. Very few cases have been reported in children. It is often associated with congenital dermal sinus (CDS), a midline skin dimple, in sacral area which is the sign and a type of occult spinal dysraphism. Therefore whenever a dermal sinus is noted in a new born baby possibility of spinal dysraphism has to be ruled out and treated accordingly before it creates a catastrophic infection of the spinal cord.[4] CDS is the commonest cause of intramedullary spinal cord abscess.[5]

Hear we present an infant with intramedullary abscess presented with paraparesis and bowel and bladder

Figure 1: Congenital dermal sinus in the midline of low back. There was associated another sinus just beside that which was discharging pus on and off.

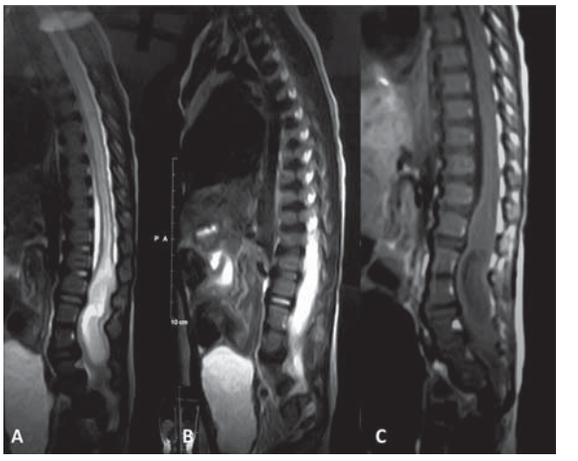

Figure 2: MRI dorsolumbosacral spine, A, B) T2W images C) T1W image showing intramedullary spinal abscess

involvement.

Case Report

A 2-month-old male baby was referred to us by a pediatric surgeon with the complaint of gradually progressing paraparesis with bowel and bladder incontinence. There was a congenital dermal sinus in the low back in the midline **(Figure 1)**. In addition there was another sinus just beside that which was discharging the pus and was previously treated by pediatric surgeon, but the sinus didn't heal.

Thinking the possibility of some sort of spinal lesion, MRI plain and contrast was done which revealed fluid collection in the intramedullary space of spinal cord at the level of L3-4-5-S1 suggesting abscess formation **(Figure 2)**.

Immediate surgical intervention was advised for drainage of pus and histological evaluation of the lesion. But patient party denied, thus the baby was put on steroid therapy. Some improvement in the leg movement was noted after some time. The baby was brought to hospital again with the complaints of paraparesis worse than before. Repeat MRI showed worsening and increasing size of previous intramedullary abscess. Surgery was again suggested and finally approved by the parents of baby. Under general anesthesia and in prone position and midline incision, right hemilaminectomy was don at the level of L3-4-5-S1. Dura was incised and spinal cord, conus and cauda equina were exposed which were swollen and congested. Midline myelotomy was done opening the intramedullary space. Free flow of thick pus was observed **(Figure 3)**. Pus was drained and collected for culture.

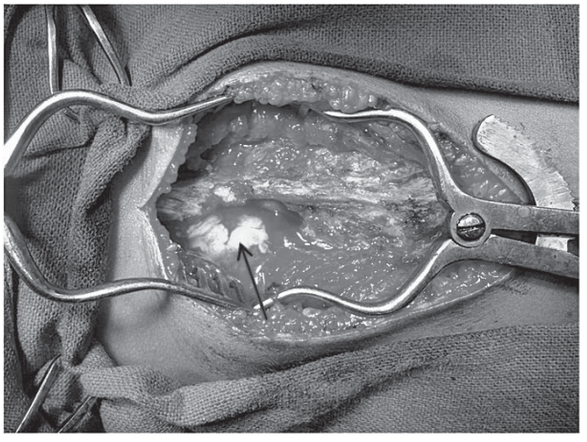

Figure 3: Pus coming out of spinal cord after myelotomy, indicated by arrow.

Similarly few pieces of granulation tissue were collected for histological evaluation. Intramedullary space was thoroughly irrigated with normal saline and Gentamycin solution. Dermal sinus was excised and closed.

Pus culture for 72 hours was negative and histological examination of the tissue showed features of tuberculosis. Antitubercular treatment was started and the baby became much better.

Discussions

In most of the pediatric cases SIA is often due to CDS as described above and as explained in our case report. However, in adult SIA can be due to other various causes such as vertebral infection or osteomyelitis.[7] Vertebral

infection is usually found in patients with compromised immunity, diabetes, tuberculosis etc.

CDS is a type of occult spinal dysraphism characterized by a midline skin dimple. It has to be explored and investigated in the line of spinal infection if presented with neurological deficit. CDS are the commonest cause of intramedullary spinal cord abscess.[4, 5]

Tuberculosis is not a fatal disease anymore in this 21st century. However resurgence of tuberculosis has been found everywhere due to immunocompromised health status and due to global migration. Central nervous system involvement is one of the most serious forms of this infection, acting as a prominent cause of morbidity and mortality in developing countries.[8] It can manifest in a variety of forms as tuberculous meningitis, tuberculoma, and tubercular abscess. It is more fatal in small children

MRI is the most reliable and definite diagnostic tool to detect SIA and thus gives hints and clue to further surgical or non surgical management. Chittem el described the typical sign called precipitation sign. Presence of an intradural extramedullary mass at the lower end of the spinal cord associated with holocord T2 hyperintensities of thespinal cord can be called precipitation sign and should raise the suspicion of intramedullary tubercular abscess.[3]

Occasionally SIA can be misdiagnosed as intramedullary mass which will create confusion not only about diagnosis but also for further treatment.[9]

SIA in small children are often found in lower lumbar or sacral region due to underlying dermal sinus and its infection. However, occasionally CDS can also be found in cervical spine which will produce SIA.[6] Similarly, SIA found in adults can be due to different cause like infective endocarditis.1 Therefore in case of adult thorough cardiac evaluation needs to be done to come to final line of management.

Timely diagnosis and prompt surgical drainage and antitubercular treatment will definitely cure the problem and improve the quality of life.[2, 7, 9, 10]

Conclusions

CDS when present in small children should alarm physicians and health workers about possible spinal infection. Prompt investigation and management is required to cure the problem.

References

1. Arnáiz-García ME, González-Santos JM, López-Rodriguez J, Dalmau-Sorli MJ, Bueno-Codoñer M, Arévalo-Abascal A. Intramedullary cervical abscess in the setting of aortic valve endocarditis. **Asian Cardiovasc Thorac Ann 23:** 64-66, 2015
2. Bhanage A, Katkar A, Ghate P, Ratta B. Intra-medullary tubercular abscess with spinal dysraphism: An unusual case. **J Pediatr Neurosci 10:** 73-75, 2015
3. Chittem L, Bommanakanti K, Alugolu R. 'Precipitation sign': a new radiological sign for spinal intramedullary tubercular abscess. **Spinal Cord 52:** S1-2, 2014
4. Dho YS1, Kim SK1, Wang KC1, Phi JH1. Catastrophic intramedullary abscess caused by a missed congenital dermal sinus. **J Korean Neurosurg Soc 57:** 225-228, 2015
5. Kanaheswari Y, Lai C, Raja Lope RJ, Azizi AB, Zulfiqar MA. Intramedullary spinal cord abscess: The result of a missed congenital dermal sinus. **J Paediatr Child Health 51:** 223-225, 2015
6. Nicola Z, Antonio C, De Tommasi A.Cervical dermal sinus complicated with intramedullary abscess in a child: case report and review of literature. **Eur Spine J 23:** 192-196, 2014
7. Takebe N, Iwasaki K, Hashikata H, Toda H. Intramedullary spinal cord abscess and subsequent granuloma formation: a rare complication of vertebral osteomyelitis detected by diffusion-weighted magnetic resonance imaging. **Neurosurg Focus 37:** E12, 2014
8. Torres C, Riascos R, Figueroa R, Gupta RK. Central nervous system tuberculosis. **Top Magn Reson Imaging 23:** 173-189, 2014
9. Vadivelu S, Desai SK, Illner A, Luerssen TG, Jea A. Infected lumbar dermoid cyst mimicking intramedullary spinal cord tumor: Observations and outcomes. **J Pediatr Neurosci 9:** 21-26, 2014
10. Vengalathur Ganesan Ramesh, Kavindapadi Veerasamy Karthikeyan, Srinivasan Kitchanan, Balakrishnan Sriraman. Holocord abscess in association with congenital dermal sinus. **J Pediatr Neurosci 8:** 198–200, 2013