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Dorsal transdural migration of a sequestered intradural lumbar disc

Laxminadh Sivaraju, M.Ch, Sumit Thakar, M.Ch, Alangar S. Hegde, M.Ch, PhD



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Title page

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Authors

Laxminadh Sivaraju, M.Ch

Email: Laxminadh.sivaraju@gmail.com

Sumit Thakar, M.Ch

Email: sumit.thakar@gmail.com

Alangar S Hegde, M.Ch,PhD

Email: hegdeas@in.com

First Author: Laxminadh Sivaraju, M.Ch

Order of Authors: Laxminadh Sivaraju, M.Ch; Sumit Thakar, M.Ch, Alangar S Hegde, M.Ch, PhD

Department and institution

Departments of Neurosurgery

Sri Sathya Sai Institute of Higher Medical

Sciences, Whitefield, Bangalore-560066, India

Corresponding Author

Dr. Laxminadh Sivaraju,

Department ofNeurosurgery,

Sri Sathya Sai Institute of Higher Medical

Sciences, Whitefield, Bangalore-560066, India

Email:laxminadh.sivaraju@gmail.com

Phone: 918884436640, Fax: 8411503

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1 **Title: Dorsal transdural migration of a sequestered intradural lumbar disc**

2 A 43 year old man presented with low backache since 3 years and radicular pain

3 in the left lower limb since one year. Neurological examination revealed a

4 positive straight leg raising test at 60 degrees on the left. MRI (Fig 1a, b)

5 showed a left L5-S1 paracentral sequestered disc prolapse compressing the

6 thecal sac and nerve root. A contrast MRI was done to rule out an intradural

7 tumour. The sequestered fragment demonstrated peripheral enhancement (Fig

8 1c). At surgery, following a L5 laminectomy, a large sequestered disc fragment

9 (Fig 2a) was found extradurally, just beneath the ligamentum flavum. Part of

10 this fragment had to be extracted from within the thecal sac, through a large

11 defect in the dorsal dura (Fig 2b) which the fragment had created. There was

12 dense fibrosis around the roots on either side within the thecal sac, and this had

13 probably sealed off any possible cerebrospinal fluid (CSF) leak. A rent in the

14 ventral dura was identified and repaired. Postoperatively, his radicular pain

15 subsided. Intradural lumbar disc herniations (ILDH) are rare, accounting for less

16 than 0.5% all herniated discs. The commonly affected levels are L4–L5 (55%),

17 L3–L4 (16%) and L5–S1 (10%). The average age of occurrence is between 50

18 and 60 years, with a male preponderance. Common presentations are with cauda

19 equina syndrome or with radiculopathy simulating an intradural tumor. Theories

20 for ILDH include congenital fusion or formation of adhesions between the

21 posterior longitudinal ligament and the ventral dura due to local inflammatory

22 reactions. The resulting adhesions result in perforation of the ventral dura
23 and prevent lateral migration of the fragment. Gadolinium-enhanced MRI scan is
24 useful to differentiate a herniated disc from discitis or tumor. The presence of
25 circumferential contrast enhancement, like in our case, raises the possibility of
26 pathologies like an abscess or epidural metastasis. Optimal treatment envisages
27 laminectomy and durotomy, careful dissection of the roots, removal of all the
28 intradural ruptured disc material and repair of the dural defect to prevent CSF
29 leakage. In none of the previously reported cases of ILDH did the intradural
30 fragment migrate out dorsally in the manner described in our report.

31 The long standing sequestered disc fragment in our patient had probably
32 induced a chronic inflammatory erosive process first in the ventral dura, and
33 later, in the dorsal dura as well. The arachnoiditis-like picture seen
34 intraoperatively, with an absence of CSF leak from within the thecal sac, lends
35 credence to this proposition.

36

37 **Figure legends**

38 Fig. 1.(A) MRI T2W sagittal and (B) axial images showed a left L5-S1
39 paracentral sequestered disc prolapse compressing the thecal sac and nerve root.
40 (C) Contrast MR axial images showed peripheral enhancement of the
41 sequestered fragment.

42 Fig. 2. (A) A large sequestered disc fragment was found extradurally (B)
43 extracting the disc fragment from within the thecal sac, through a large defect in
44 the dorsal dura which the fragment had created.



