

DISCOGENIC PAIN PERSISTING DESPITE SOLID POSTERIOR FUSION

C. R. WEATHERLEY, C. F. PRICKETT, J. P. O'BRIEN

From the Department for Spinal Disorders, Robert Jones & Agnes Hunt Orthopaedic Hospital, Oswestry

Persistent back pain in the presence of an intact posterior fusion is commonly seen and is often regarded as being psychogenic in origin. This paper discusses five patients, all of whom were chronically disabled by such pain; all five had a confirmed posterior and/or lateral fusion. In each case lateral discography identified the disc within the fused segment as the source of symptoms and pain relief was obtained with an anterior interbody fusion. This source of pain should be considered as a possibility in similar cases of failed back surgery.

Persistent low back pain and disability in patients who have previously had a laminectomy and posterior fusion can be difficult to diagnose and to treat. From a study of over 1000 patients operated on for low back pain in the past 10 years, it is clear that they are frequently diagnosed as having arachnoiditis due either to previous myelography using iophendylate (Myodil) or to previous surgery or both. Alternatively, they are labelled as having psychogenic back pain. Certain causes for continuing pain and disability after back surgery are recognised, but our purpose is to draw attention to one that is not, namely, discogenic pain arising from within the fused segments of the spine.

PATIENTS AND METHODS

The essential features were the same in all our five patients. Each presented with predominantly low back pain but with no abnormal neurological signs and in particular no root tension signs. They all had a history of having previously had a laminectomy and either a posterior or a posterolateral fusion (Table I). In some cases the fusion had been a secondary procedure carried out when symptoms persisted, and in two of the five patients the fusion was re-explored because symptoms had persisted.

The investigations of these patients on referral included both tomography to confirm a solid posterior



Fig. 1

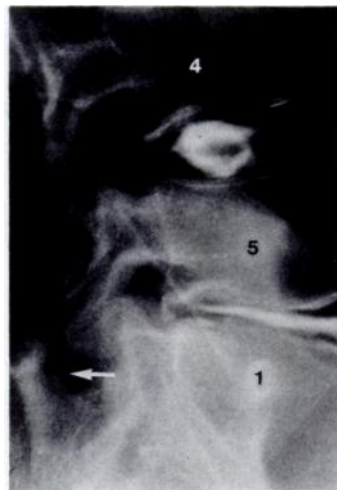


Fig. 2

Figure 1—Case 1. Anteroposterior tomogram at the level of L5/S1: there is solid bilateral posterior fusion around the laminectomy defect. Note also an impingement between the spinous processes of L4 and L5 (arrow). Figure 2—Lower lumbar discography revealed a normal L4/5 level, but injecting the L5/S1 level reproduced the patient's symptoms. The arrow marks the solid posterior fusion.

C. R. Weatherley, MD, FRCSEd, FRCS, FRCSEd(Orth), Senior Orthopaedic Registrar
The Robert Jones & Agnes Hunt Orthopaedic Hospital, Oswestry, Shropshire SY10 7AG, England.

C. F. Prickett, MD
2627 E. Washington Boulevard, Pasadena, California 91107, USA.

J. P. O'Brien, PhD, FRCSEd, FACS
The London Clinic, 149 Harley Street, London W1N 2DH, England.

Requests for reprints should be sent to Mr J. P. O'Brien.

© 1986 British Editorial Society of Bone and Joint Surgery
0301-620X/86/1049 \$2.00

Table I. Details of five patients with persistent low back pain after operation

Case	Sex	Age (years)	Previous operations	Level of symptoms	Treatment
1	Male	31	Laminectomy for L5/S1 disc and posterior fusion; L5/S1 re-exploration and re-fusion	L5/S1	Anterior fusion L5/S1
2	Female	41	Laminectomy of L4/5 and L5/S1 discs and posterior fusion	L4/5 (patient had spontaneous interbody fusion at L5/S1)	Anterior fusion L4/5
3	Male	44	Laminectomy for L4/5 and L5/S1 discs; Boucher facet joint fusions L4/5 and L5/S1	L4/5	Refused operation
4	Male	43	Laminectomy for L5/S1 disc; posterolateral and Boucher* facet joint fusions L4 to sacrum	L4/5	Anterior fusion L4/5 and L5/S1
5	Male	47	Laminectomy for L5/S1 disc; posterior fusion L5 to sacrum; re-exploration and posterior fusion L5 to sacrum	L5/S1	Anterior fusion L5/S1

* Boucher 1959.

or posterolateral fusion (Fig. 1), and lateral discography to identify the symptomatic level (Fig. 2). The treatment proposed in each case was an anterior interbody fusion of the symptomatic level: this was performed in four patients, all of whom had complete relief of pain. In each case the patient was able, after rehabilitation, to resume a normal life. However, one man (Case 3), declined operation because his previous back surgery had been unsuccessful.

DISCUSSION

Persistent back pain in patients who have previously had a laminectomy and posterior fusion but who show no evidence of root compression is not uncommon. Wiltse (1977) has reported seeing many patients who, despite an unquestionably solid fusion, still experience severe pain. Such patients form a difficult group to evaluate and not infrequently there is a psychological overlay. Although psychological factors are commonly found in association with chronic back pain (Crock 1976), this should not lead to a hasty but inappropriate diagnosis. There is also a risk that by diagnosing arachnoiditis, which is not uncommon in patients whose back surgery has failed, a further investigation may be halted and possible treatment denied. Every effort should always be made to find a treatable pain source; the most common are pseudoarthrosis of the fusion mass, painful impingement at the junction between the fused and non-fused segments and an acquired spondylolysis (Crock 1976; Brunet and Wiley 1984).

In patients who have been treated by posterior or

posterolateral fusion, lateral discography is normally used. This has been found to be a reliable indicator of the level at which chronic back pain originates (Simmons and Segil 1975). Previously, attention had been focused on the disc between the fused and non-fused segments, since it was considered that abnormal loading at this point might result in symptoms. However, provocation discography (Park 1980) of the levels contained within a solid posterior fusion has identified a symptomatic level in some patients. Pain relief and rehabilitation of these patients has confirmed this diagnosis.

We conclude that in patients with chronic back pain it is important to consider the discs within the segments of a solid posterior fusion as a possible source of the pain. Lateral discography is a helpful diagnostic aid in identifying the symptomatic level, and anterior fusion is an effective treatment.

REFERENCES

- Boucher HH. A method of spinal fusion. *J Bone Joint Surg [Br]* 1959; **41-B**: 248-59.
- Brunet JA, Wiley JJ. Acquired spondylolysis after spinal fusion. *J Bone Joint Surg [Br]* 1984; **66-B**: 720-4.
- Crock HV. Observations on the management of failed spinal operations. *J Bone Joint Surg [Br]* 1976; **58-B**: 193-9.
- Park WM. Radiological investigation of the intervertebral disc. In: Jayson MIV, ed. *The lumbar spine and back pain*. 2nd ed. Tunbridge Wells: Pitman Medical, 1980: 185-230.
- Simmons EH, Segil CM. An evaluation of discography in the localization of symptomatic levels in discogenic disease of the spine. *Clin Orthop* 1975; **108**: 57-69.
- Wiltse LL. Surgery for intervertebral disk disease of the lumbar spine. *Clin Orthop* 1977; **129**: 22-45.