Posterior approach for radical excision of sacral chordoma

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Summary. *Sacral chordoma is a rare primary malignant tumour of bone. Operations to excise these tumours are complex, time consuming and involve considerable blood loss. We describe the use of a posterior approach to excise chordomas from the sacrum of five patients without visceral involvement. This approach is less complex than combined approaches previously described. No distal recurrences had occurred at a mean follow-up of 5 years. One patient developed local recurrence and was successfully treated by wide local excision. Postoperative morbidity was low with regard to urinary and faecal continence problems. We recommend the use of Mersilene mesh to prevent herniation through the sacral defect.*

Résumé. *Le chordome sacrococcygien est une tumeur rare, dérivée des restes de la notochorde, qui croît lentement, mais est localement agressive. Nous rapportons cinq cas de chordomes sacrococcygiens traités par exérèse large en bloc par voie postérieure. Deux malades ont subi une résection du sacrum à travers la deuxième vertèbre sacrée et trois autres à travers la troisième préservant ainsi la stabilité du pelvis et la fonction du sphincter. Chez tous les malades une plaque de Mersilene a été implantée dans la paroi postérieure évitant une hernie postopératoire. Les malades ont été suivis en moyenne 61.2 mois (de 42 en 103 mois). Quatre n'ont présenté aucun signe de réci-*

dive ou de métastase. Un malade a présenté une récurrence locale superficielle, traitée par exérèse large, sans signe de métastase.

Le but de ce travail est de rapporter les suites opératoires de cinq malades traités par excision radicale par voie d'abord postérieure et de souligner la moins forte morbidité de cette méthode en comparaison avec la chirurgie par voie abdomino-sacrée.

Introduction

Chordoma is a rare primary malignant tumour of bone, arising in remnants of primitive notochord. Of all such tumours, 50% arise in the sacrum [1, 2, 6, 7, 8, 12].

Surgical excision of sacral chordoma is technically challenging. Only with the development of a combined abdominal and trans-sacral approach have surgical cures been achieved [9, 10]. Lately the posterior approach has been described for excision of sacral tumours [3].

We describe our technique of radical en bloc resection of sacral chordoma. This was achieved using a posterior approach and Mersilene mesh to prevent postoperative visceral herniation.

Patients and methods

Between 1987–1993 we operated on five patients with sacral chordoma. Of these five, three were male and two female. Their average age was 52 years (41–70). Common presenting symptoms and the level of tumour at presentation are summarized in Table 1. At staging tumour spread to adjacent bone

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Table 1.

No.	Sex	Age	Clinical presentation	Upper level of involvement	Time interval between symptoms and surgery (months)
1	M	70	Low back pain Perineal numbness	S3	4
2	M	48	Low back pain Rectal dysfunction Urinary disturbance (urgency & frequency)	S2	2
3	M	51	Low back pain	S3	3
4	F	52	Low back pain Incontinence Perineal numbness Rectal dysfunction	S2	36
5	F	41	Low back pain	S3	4

Fig. 1. MRI of sacrum. There is a chordoma (*arrowed*) with local sacral destruction**Fig. 2.** Two years after operation, MRI shows no local recurrence

Table 2.

No.	Level of vertebral resection	Higher sacral nerve root sectioned	Adjuvant radiotherapy	Follow-up (years)	Outcome
1	S2	Unilateral S3	No	8.5	No evidence of disease
2	S2	Unilateral S2	No	3.5	No evidence of disease
3	S3	Unilateral S4	No	6	No evidence of disease
4	S2	Unilateral S2	Yes	3.5	1. Superficial local recurrence: wide excision 2. Mersilene infection: removed
5	S3	Unilateral S4	No	4	No evidence of disease

and soft tissue was detected but in no patient were adjacent viscera involved (Figs. 1 + 2). All tumours were biopsied preoperatively to establish a histological diagnosis.

Surgical technique

The large bowel was prepared with enemas and broad spectrum antibiotics. A general anaesthetic was given and the patient placed prone in the knee-chest position. The anal sphincter was dilated and packed with vaseline gauze.

A crescentic incision with a distally based flap was made, centred on L5/S1. This incision was selected so as to keep the wound distant from the perineum and potential faecal contamination. In all patients the scar from diagnostic biopsy was excised with the crescentic incision. The posterior aspect of the sacrum and the tumour were then exposed. During dissection, attention was paid to haemostasis at all times; often we found digital dissection to be useful. The tumour was excised together with a wide margin of healthy bone proximally. Involved nerve roots were excised en bloc. In all cases at least one nerve root at the S2 level was preserved (Table 2).

To reconstruct the posterior wall of the pelvis we implanted Mersilene mesh. The wound was closed in layers over vacuum drains.

Results

We experienced no significant peroperative complications using the posterior approach for en bloc excision of sacral chordoma.

No patient has developed metastatic spread of tumour at a mean follow up of 5 years. One developed a local recurrence which was successfully treated by wide local excision and radiotherapy (Table 2).

After operation, urinary and faecal incontinence were present in the one patient who had a local recurrence. This same patient developed infection about the Mersilene mesh five months post-

operatively, and was successfully treated by its removal. No patients developed sacral herniation or complained of pelvic instability.

Discussion

Excision of sacral tumours is complex and dangerous [5, 14]. Three surgical approaches suitable for sacral chordoma have been described. The combined abdominal and trans-sacral approach is indicated for tumours with visceral spread [11]. The combined extended ilioinguinal and posterior approach is useful for proximal sacral lesions [13]. Both these operations are complex, time consuming and involve significant blood loss; excision of sacral nerve roots and the proximal sacrum often leads to incontinence and pelvic instability [4].

We have achieved curative resection of low localized chordomas without significant morbidity and acceptable recurrence rates through a posterior approach. This allows a shorter, less complex operation for the treatment of these rare tumours. The use of Mersilene mesh reduces the risk of post-operative herniation through the sacral defect.

We recommend the posterior approach for excision of sacral chordoma without local visceral spread.

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