Sacral chordoma surgery

En bloc resection is the only well-established predictor of progression-free survival. Optimal surgical management requires a complex multi-disciplinary approach [1)].

En bloc resection is frequently associated with permanent neurological deficits involving sphincters and sexual functions.

The particulars of the surgical procedure are highly dependent on the extent of the lesion. These tumors may spread through the gluteal musculature, and if significant muscular excision is required, then a pedicle based rectus abdominis flap may be employed. A diverting colostomy may be required if it is necessary to resect the rectum or if a cephalic sacral resection is anticipated.

For chordomas caudal to the third sacral segment, most agree that a posterior approach is satisfactory. For more rostral lesions, some advocate a combined anterior-posterior approach. However, a posterior approach has been also been used for these.

Berra et al. described an innovative technique of en bloc resection followed by reconstruction of the sacral nerves with nerve grafts.

The chordoma was excised through a posterior approach after dividing the proximal and distal sacral nerves using the established technique. After that, a microsurgical S2-S3-S4 nerve reconstruction was performed connecting the proximal and distal stumps with sural nerve grafts withdrawn from both lower limbs.

Immediately after surgery, the patient experienced complete impairment of sexual function and sphincters with urinary and fecal incontinence. After six months, there was a progressive recovery of sexual function and sphincter control. One year after the operation, the patient achieved an adequate sexual life (erection and ejaculation) and complete control of the bladder and anal sphincter.

Reconstruction of nerves sacrificed during sacral tumor removal has been shown to be effective in restoring sphincter and sexual function and is a promising technique that may significantly improve patients' quality of life [2)].

Efetov et al. successfully treated using a laparoscopic approach and one by open surgery. They presented all details of the surgical technique and patients' outcome. Minimally invasive methods in the surgical treatment of chordoma allow to perform a radical dissection of the tumour, minimizing the operative trauma. A laparoscopic approach can be considered safe and radical for sacral chordoma treatment [3)]

Garcia Mora et al. managed with a combined approach: anterior transabdominal laparoscopic and posterior approach, achieving complete tumor resection, without postoperative complications and with the benefits of minimally invasive surgery [4)].

Sacrectomy

see Sacrectomy.

Books

Chordomas and Chondrosarcomas of the Skull Base and Spine (Second Edition) Chapter 29 - Surgical Treatment of Sacral Chordoma [5].

1)
Pendharkar AV, Ho AL, Sussman ES, Desai A. Surgical Management of Sacral Chordomas: Illustrative Cases and Current Management Paradigms. Cureus. 2015 Aug 12;7(8):e301. doi: 10.7759/cureus.301. PMID: 26430575; PMCID: PMC4571900.
2)
Berra LV, Armocida D, Palmieri M, Di Norcia V, D'Angelo L, Mongardini M, Vigliotta M, Maccari E, Santoro A. Sacral Nerves Reconstruction After Surgical Resection of a Large Sacral Chordoma Restores the Urinary and Sexual Functionality and the Anal Continence. Neurospine. 2022 Jan 30. doi: 10.14245/ns.2142724.362. Epub ahead of print. PMID: 35130427.
3)
Efetov SK, Picciariello A, Kochetkov VS, Puzakov KB, Alekberzade AV, Tulina IA, Tsarkov PV. Surgical Treatment of Sacral Chordoma: The Role of Laparoscopy. Case Rep Oncol. 2020 Mar 24;13(1):255-260. doi: 10.1159/000506441. PMID: 32308586; PMCID: PMC7154265.
4)
Garcia Mora M, Mariño IF, Puerto Horta LJ, Gonzalez F, Diaz Casas S. The Surgical Approach Combined With Minimally Invasive Surgery for Sacral Chordoma. Cureus. 2021 Oct 11;13(10):e18690. doi: 10.7759/cureus.18690. PMID: 34786264; PMCID: PMC8580643.
5)
https://www.sciencedirect.com/science/article/pii/B9780128042571000293