The posterior approach for low retrorectal tumors in adults

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Abstract

Background and aims Retrorectal tumors are uncommon in adults and arise in different tissues in the presacral space. The aim of this study is to evaluate early complete surgical resection by a perineal approach as the therapy-of-choice for tumors under the sacral promontory.

Patients and methods We evaluated the posterior approach, especially intersphincteric and parasacrococcygeal excisions, in terms of resectability, morbidity, risk of recurrence, and anal function. The records of all patients who underwent a posterior surgical procedure in our institution for low-lying retrorectal tumors between 1994 and 2003 were reviewed.

Results Sixteen patients (13 women and three men) were included in this study. The age range was 21 to 57 years (median of 37 years). Pathological findings included ten tailgut cysts, three teratomas, one leiomyoma, one dermoid cyst, and one schwannoma. Complete tumor resection was obtained in 15 patients. There was one case with a microscopic residual tumor. No postoperative mortality was seen, and a minor complication occurred in one patient. There was no anal dysfunction. The postoperative course was uneventful, with only one tumor recurrence at 5 months. The median follow up was 60 months (ranging from 18 to 132 months).

Conclusion In this study, the posterior approach allows complete resection of low retrorectal tumors, with low morbidity, no incontinence, nearly no recurrence, and no mortality.

Keywords Retrorectal tumors · Posterior approach · Anal incontinence

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Introduction

Retrorectal tumors in adults are rare. The true incidence is difficult to assess. Jao and colleagues [1] found the incidence rate to be only one in approximately 40,000 patient admissions. Retrorectal tumors may be the source of chronic perirectal symptoms, but the majority of these tumors are asymptomatic, especially when they are benign. These lesions are, therefore, frequently clinically unrecognized, misdiagnosed, or mistreated [1–5].

The retrorectal space, also referred to as the presacral space, is defined as the space surrounded by the sacrum posteriorly, the peritoneal reflection superiorly (at the level between the second and the third sacral segments), the rectum anteriorly, and the levator ani and coccygeous muscles inferiorly. The ureters and iliac vessels are lateral margins [3, 4, 6]. This retrorectal space is a potential site for a wide variety of lesions: congenital, inflammatory, neurogenic, osseous, and miscellaneous other types [2, 3, 6].

Women are involved more frequently than men. Usually, these tumors are benign, but they require systematic removal because of the risk of hemorrhage, infection, compression of adjacent organs, chronic pain, dystocia during delivery, and malignant transformation [2, 3, 7, 8]. The posterior approach for the treatment of retrorectal tumors comprises many techniques: transsphincteric excision; the transsacral, transanorectal, and abdominoperineal

approaches; and the new transsacrococcygeal route, but we prefer the parasacrococcygeal and the intersphincteric approaches because of the safety of these two procedures. The aim of this study is to assess the interest of these two approaches, which are used in 16 cases of retrorectal tumors.

Materials and methods

All patients operated on by the same surgeon (B. Roche) with a posterior approach for low retrorectal tumors between 1994 and 2003, in the University Hospital of Geneva, were evaluated. The lesions that needed anterior approaches were excluded. We reviewed these data retrospectively. The surgical strategy for each tumor excision was based on computed tomography (CT), endoultrasonography (EUS), or magnetic resonance imaging (MRI) findings.

Intersphincteric approach

Through a V-shaped, or radial depending on the size of the retrorectal tumor, incision posterior to the anus, the intersphincteric plane is opened and bluntly dissected. The anal canal and internal sphincter are separated from the external sphincter up to the level of the puborectalis sling. The dissection is continued upward in the retrorectal fatty space. The division of Waldeyer's fascia may be necessary to expose the upper surface of the levator ani muscles. We reserve this technique for very low-lying lesions.

Parasacrococcygeal approach

The patient is placed in the prone jackknife position. The sacrum, coccyx, and anococcygeal ligament are identified through a parasacrococcygeal curvilinear incision. For small lesions it is not necessary to cut the sphincter or the puborectalis sling. If necessary, the coccyx is disarticulated from the S5 vertebra and resected to allow entrance into the supralevator space. The gluteus maximus muscle can be detached on each side. We perform this technique when the lesion seems to be deeper or higher than in cases selected for an intersphincteric approach. When a doubt remains concerning the malignancy of the lesion, the parasacrococcygeal approach is preferred over the intersphincteric approach.

We evaluated specific technical details, possible perioperative and postoperative complications, risk of recurrence, and anal dysfunction. Routine follow-up examinations were performed first at 2 weeks after surgery. Then, the patient was followed-up at 6 months and each year after surgery. The anorectal function was controlled by clinical examination and by an anal incontinence score.

Results

Sixteen patients were included in this study. All patients (13 women and three men) were treated with excision of the retrorectal tumors by a parasacrococcygeal or an intersphincteric approach. The patients' ages ranged from 21 to 57 years, with a median age of 37 years. The follow up period ranged from 18 to 132 months (median of 60 months). The final diagnoses included ten tailgut cysts, three teratomas, one leiomymoma, one dermoid cyst, and one schwannoma (Table 1); all of the lesions were benign.

The excisions were macroscopically complete in all cases, but there was one case of recurrence after 5 months (1/16 cases, 6%). This patient had already had multiple recurrences after surgery in other centers and he needed a second operation in our unit to remove the lesion entirely. He did not have any subsequent recurrences after 60 months of follow-up.

The rectum was never injured. The blood losses were insignificant and there was no need for blood transfusion. There were no postoperative complications, except for one suspicion of pulmonary embolism, which was never confirmed, and the patient was discharged from the hospital without any treatment. In this series, no anal incontinence was seen.

Discussion

Retrorectal tumors are often completely asymptomatic, as was seen in 31% of our cases, or cause nonspecific symptoms. We also found a strong female predominance (81%), in keeping with the literature [2]. Careful rectal examination is essential and may give some indication of the likely diagnosis. The majority of patients (75% in our study) have a palpable mass on digital examination, making it the most important, most effective, and least expensive means of identifying retrorectal tumors [2, 4, 9, 10].

To confirm the diagnosis, CT or MRI should be performed. These methods also provide details of the size and composition of the tumor, as well as its relationship with the surrounding structures. This information is necessary to choose the best surgical approach [2–5, 10, 11]. CT scanning has become the most valuable diagnostic modality. MRI is a good alternative for making an accurate diagnosis, especially when CT contraindications exist, but published data on its use are lacking.

Endorectal ultrasound can be beneficial in evaluating retrorectal masses and their relation with the rectal wall

Table 1 Patients' characteristics

No.	Age (years)	Gender	History	Clinical examination	Radiology	Size of the lesion	Operation	Histopathology	Recurrence	Follow up	Complications
1	37	F	Rectal discomfort	Nothing	MRI	6×5 cm	Intersphincteric	Tailgut cyst (b)	No	48	No
2	26	F	Recurrent mass	Mass on DE	CT	6×5.5 cm	Intersphincteric	Tailgut cyst (b)	No	120	No
3	57	F	Asymptomatic	Mass on DE	EUS	7×5 cm	Parasacrococcygeal	Tailgut cyst (b)	No	60	No
4	21	F	Asymptomatic	Nothing	CT	7.5×6.5 cm	Parasacrococcygeal	Tailgut cyst (b)	No	108	No
5	37	F	Discomfort	Mass on DE	CT	5×5 cm	Intersphincteric	Tailgut cyst (b)	No	84	No
6	33	F	Asymptomatic	Mass on DE	CT	4×6 cm	Intersphincteric	Tailgut cyst (b)	No	84	No
7	51	F	Pain	Mass on DE	CT	6×5 cm	Intersphincteric	Tailgut cyst (b)	No	36	No
8	39	F	Recurrent fistula	Fistula	CT	7×6 cm	Parasacrococcygeal	Tailgut cyst (b)	Yes	60	Reoperation
9	50	M	Persistent SCC	Mass on DE	MRI	3×3 cm	Parasacrococcygeal	Teratoma (b)	No	18	No
10	39	M	Recurrent teratoma	Mass on DE	CT	5×6 cm	Parasacrococcygeal	Teratoma (b)	No	96	No
11	37	F	Asymptomatic	Mass on DE	MRI	7×5 cm	Parasacrococcygeal	Teratoma (b)	No	120	No
12	42	F	Pain	Mass on DE	EUS	2×2 cm	Intersphincteric	Leiomyoma (b)	No	36	No
13	21	F	Asymptomatic	Mass on DE	EUS/MRI	7.5×6.5 cm	Parasacrococcygeal	Schwannoma (b)	No	36	No
14	33	M	Recurrent fistula	Fistula	EUS	2×2 cm	Intersphincteric	Dermoid cyst (b)	No	36	Suspicion of PE
15	50	F	Pain	Mass on DE	EUS	5×7 cm	Intersphincteric	Tailgut cyst (b)	No	24	No
16	33	F	Discomfort	Mass on DE	CT	12×12 cm	Parasacrococcygeal	Tailgut cyst (b)	No	132	No

M male, *F* female, *SCC* sacrococcygeal cyst, *DE* digital examination, *EUS* endoscopic ultrasonography, *CT* computed tomography, *MRI* magnetic resonance imaging, *b* benign, *PE* pulmonary embolism

[2, 3]. But the role of EUS is not yet completely clear in the literature. However, in our experience, EUS constitutes a good means of visualizing the lesion and its environment.

The role of preoperative tumor biopsy is controversial [3]. Only if a lesion is thought to be inoperable or locally advanced can a biopsy be helpful to determine adjuvant therapy. A CT-guided extrarectal and presacral approach is recommended [2, 3]. Thus, all retrorectal tumors must be resected to prevent any malignant transformation or infection [2–4, 6, 11].

Several surgical approaches are used for the resection of retrorectal tumors: anterior (abdominal), posterior, or combined [2]. The choice of approach is dictated by the location and the size of the mass and its relationship with adjacent structures [4]. The abdominal approach is recommended for tumors above the sacral promontory, as it provides direct visualization of the middle sacral artery, the presacral veins, and the presacral nerves [3, 7]. Bax and van der Zee [12] evaluated a laparoscopic approach for sacrococcygeal teratomas in children, but few data are available for adults. Recently, Konstantinidis et al. [13] reported two cases of laparoscopic resection of presacral schwannomas. They showed that a laparoscopic approach is a safe and efficient option in the case of benign pelvic

tumors and might offer the advantage of better visualization of structures, especially in narrow anatomic spaces. However, data are lacking for very low retrorectal masses.

In our small series, a wholly posterior approach for low-lying tumors (i.e., under the promontory) was performed with an en bloc excision. If the superior border of the tumor can be palpated during digital examination, the posterior approach should be successful [2]. In other cases, when the superior edge is not palpable, imaging modalities allow to choose the best therapeutic approach. When the lesion is nevertheless low without any sign of infiltration, or when at least half of the lesion can be palpated, it may be appropriate to choose a wholly posterior approach. We used two different techniques in our unit: the intersphincteric and the parasacrococcygeal approaches. Irrespective of the approach, all patients should undergo preoperative antibiotic preparation [2].

The intersphincteric excision uses an embryologically avascular plane, through a perianal incision between the internal and the external sphincters. This incision is deepened, sparing both the anorectal viscera and the surrounding striated muscles. This guarantees continence for the patient, as it preserves good sphincter function. This approach seems to avoid the possibility of sacral nerve

Table 2 Advantages and disadvantages of the different posterior approaches

Type of posterior approach	Advantages and uses	Disadvantages and limitations
Intersphincteric	Seems to avoid the possibility of sacral nerve injury and postoperative urinary retention	Only for very low-lying lesions
	Preserves a good sphincter function	When there is no preoperative suspicion of malignancy [14]
	Uses an embryological avascular plane [14]	
Parasacrococcygeal	Useful for low-lying lesions and infected cysts [6, 11]	Only for low-lying lesions
	Good exposure [11]	If tumor extends in the cranial direction, hemostasis can be difficult [2]
	Coccyx may remain in place [11]	
	For lesion deeper or higher than in cases of intersphincteric approach	
	When there is a doubt concerning the malignancy of the lesion	
Transsphincteric	Used when there is extension of the tumor into rectal wall [3]	Risk of relatively poor function of the sphincter after the procedure [3, 14–16]
Transsacral	Offers good exposition [4, 17]	Often requires a coccyx resection
	Can be used for excision of midrectal cancer [18]	Risk of posterior discomfort [3, 7]
		Sometimes associated with gluteus maximus detachment [3, 16]
		Risk of fistula formation [13]
		Risk of nervous sacral lesion [7]
Transsacrococcygeal	Visualization of the middle rectum	Has not yet been evaluated for retrorectal masses
	Spares the anal sphincter and the sacrum [19]	
Transanorectal	Useful in cases of ruptured transrectal cysts [3, 20]	Risk of leaving other cysts in place
		Limited visualization of the retrorectal space [6]
		Risk of bleeding and incontinence [13]
		Requires special instruments and technical experience [19]
		Rarely risk of subcutaneous emphysema [21]
Transvaginal	When the lesion veers off the midline [3]	Only for prerectal lesions [3]

injury and postoperative urinary retention. It should be used when there is no preoperative suspicion of malignancy [14]. This approach is performed in a lithotomy position in our center, allowing for an abdominal incision in case of hemorrhage [6]. We reserve this technique for very low-lying lesions.

The parasacrococcygeal approach is most useful for low-lying lesions and infected cysts [6, 11]. The patient is either in a prone jackknife position or in a lithotomy position. A parasacrococcygeal curvilinear incision is used. The ano-cococcygeal ligament and the levator ani muscle are divided, and the supralevator space is entered. The coccyx may be disarticulated if necessary, but this was never the case in our experience. We perform this technique when the lesion seems to be deeper or higher than in cases selected for an intersphincteric approach. When a doubt remains concerning the malignancy of the lesion, the parasacrococcygeal approach is preferred over the intersphincteric approach. The other posterior approaches are summarized in the Table 2, with their advantages and disadvantages.

In conclusion, for low retrorectal tumors, the posterior approaches are safe and permit a good exposure of the lesion, with a very low morbidity, nearly no recurrence, and no anal incontinence in this series. We prefer to perform and recommend the parasacrococcygeal and the intersphincteric en bloc excisions for these low-lying masses, with a lithotomy position allowing an emergency laparotomy if necessary. Of course, when there is a tumor above the sacral promontory, we recommend a combined approach, allowing good visualization and exposure of the vessels and the nerves.

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