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REVIEW

Surgical management of retro-rectal tumors in the adult

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KEYWORDS
Retro-rectal tumor;
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Kraske Technique

Summary Retrorectal tumors (RRT), whether benign or malignant in nature, are rare in adults and often asymptomatic. While diagnosis is based on clinical findings, differential diagnosis depends mainly on magnetic resonance imaging (MRI). MRI provides guidance for surgical management, the first-line treatment of choice. Four surgical approaches are described: abdominal, perineal, posterior and abdomino-sacral.. This review of major reported series has made it possible to specify the indications for each surgical approach, as well as the advantages, disadvantages and complications of each one. The choice of surgical approach is determined by the nature of the RRT, its anatomical position relative to the middle of the third sacral vertebra (S3) and the presence or absence of invasion of the neighboring organs, the pelvis or sacral vertebrae. The abdominal route is chosen for tumors situated above the middle of S3, whether benign or malignant, but without invasion of neighboring organs. The perineal route is indicated for benign RRT situated below the middle of S3. The posterior route is chosen for tumors located below the middle of S3, and allows an associated resection of sacral segments in case of tumor invasion. The combined abdomino-sacral route is indicated for RRT above the middle of S3, when there is an invasion of a pelvic organ or a sacral vertebra. Intra- and post-operative complications are mainly hemorrhagic, neurological and infectious. The long-term prognosis is usually favorable, but varies according to the nature of the RRT and its management.

Introduction

Retrorectal tumors (RRT), either benign or malignant, are rare tumors in adults. Their annual incidence in the general population is estimated between 0.0025% and 0.014% [1,2], with a female predominance [3] and an average age of 30 years [4]. They are congenital in two-thirds of cases, often asymptomatic, and usually discovered fortuitously [5]. The diagnosis of RRT relies on clinical findings and magnetic

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Table 1 The principal etiologies of retro-rectal tumors.

	Benign	Malignant
Congenital	Vestigial cysts: Dermoid cyst; Epidermoid cyst; Enteroid cyst or cystic hamartoma	Sacro-coccygeal chordoma
	Anterior Meningocele	Malignant degeneration of a congenital retrorectal tumor
	Benign teratoma	
	Rectal duplication	
Acquired	Inflammatory: Granuloma	Neurogenic: Malignant schwannoma; Neurofibrosarcoma; Glioneuroblastoma; Neuroendocrine carcinoma
	Neurogenic: Schwannoma; Neurofibroma;Meningioma	
	Osteogenic: Osteoma; Osteochondroma	Osteogenic: Chondrosarcoma; Ewing sarcoma
	Others: Fibroma	Others: Sarcoma; GIST[a]; Metastasis; Leiomyosarcoma; Liposarcoma

[a] GIST: gastro-intestinal stromal tumor.

resonance imaging (MRI) to determine the nature and especially the anatomical relationships that guide surgical management. Surgery is the treatment of reference. The surgical approach is determined according to the nature of the RRT, its anatomical location relative to the middle of the third sacral vertebra (S3), and the presence or absence of invasion or attachment to neighboring organs, the pelvis, or sacral segments. Four surgical approaches are described: abdominal, perineal, posterior and abdomino-sacral. After detailing the various etiologies of RRT and their prognosis, this review addresses the diagnostic approach, the surgical management of RRT, the indications for each of the approaches (with their advantages, disadvantages and complications), the role of adjuvant and neo-adjuvant treatments, and the place of therapeutic abstention.

Etiologies of retro-rectal tumors

Malignant tumors represent on average 30% of RRTs in large series reported in the literature. Benign lesions are asymptomatic in the majority of cases, but may be manifested by a variety of non-specific symptoms [6]. RRT associated with abdominal pain, intestinal transit disorders or neurological signs should be suspected of malignancy or malignant degeneration of a benign tumor. RRTs are of variable histological nature: cystic, inflammatory, nerve or bone origin [2,3,7,8]. RRTs are congenital in two-thirds of cases and acquired in one-third [1,9] (Table 1).

Congenital and benign RRTs represent 55% to 81% in various reported series [3,5]. Vestigial cysts predominate in women, including dermoid cysts, epidermoid cysts, and enteric or hamartomatous cysts, also called tailgut cysts. Cystic retro-rectal hamartomas represent the majority of benign tumors, ranging from 8-62% in various series, with dermoid and epidermoid cysts representing from 3 to 22% of benign tumors [1,2,5,10]. Benign congenital tumors also include anterior meningoceles, benign teratomas, and rectal duplications.

Of the malignant tumors, chordoma is the most common, averaging 38% [11]. Chordoma, a solid congenital malignant tumor, occurs predominantly in men between 50 and 70 years of age [4,5,10,12]. Neurogenic RRTs represent 15%, while RRTs arising from bone account for 3%, and RRTs of inflammatory origin for 2.5%. Other types of RRT make up the remaining 19% [3]. About 10% of cystic lesions and 60% of solid RRTs are malignant [5,7,8].

The discovery of a retro-rectal mass in the adult requires a search for an incomplete Currarino syndrome that passed unnoticed in childhood. This is an autosomal dominant hereditary sacral agenesis, which associates a sacral defect with anorectal malformation and presacral tumor. The mutation of the HLXB9 gene, located in the chromosomal region 7q36, has been demonstrated in cases of familial Currarino syndrome and in 30% of sporadic cases [13].

Prognosis

The long-term prognosis of RRT depends on the histological nature of the lesion and the quality of the surgical excision. The primary goal of RRT management is macroscopically complete tumor excision, with uninvolved surgical margins. This is an important criterion, which determines the overall prognosis, including survival, morbidity, and avoidance of recurrence or malignant degeneration of a retained fragment. The risk of a vestigial cyst degenerating into adenocarcinoma varies from 1 to 12%, but can be as high as 60% if the cyst contains a solid component [14]. Malignant degeneration occurs predominantly in men.

Superinfection of a retro-rectal cyst is observed in up to 30% of cases [14] and can then be mistaken for abscess during the initial diagnostic procedure, particularly if it fistulizes into the rectum. This presentation leads to repeated but inappropriate and ineffective surgical procedures due to diagnostic error that prolongs the patient's overall care [15]. The recurrence rate for benign RRT is low, reaching 7% in some series [10,16]. The survival rate is close to 100%. On the other hand, malignant RRT tends to recur in almost all cases. The study by Cody et al. reported local recurrence of chordoma in 93% of cases, with a 5-year survival rate of 69% and a 10-year survival rate of 50% after complete resection [8,11].

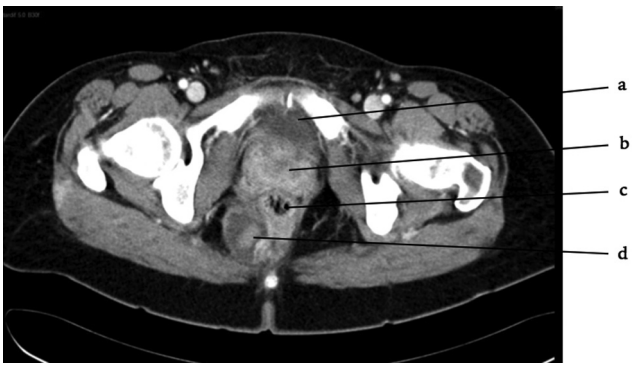

Figure 1. CT-Scan aspect of a right retro-rectal neuroendocrine carcinoma, probably developed on a cystic retro-rectal Hamartoma. Fifty-six-year-old patient with abdominal pain, and deterioration of the general condition: a): bladder, b): uterus, c): rectum, d): heterogeneous ovalar solid lesion, in front of the right pyramid muscle, outside the sphincter, enhancing after contrast injection.

Diagnostic approach

The diagnosis of RRT is based on clinical findings, mainly with digital rectal examination, and on imaging. Because the clinical findings of RRT are not very specific, several types of imaging can be used to accurately diagnose RRT.

Abdominopelvic CT scan

Computerized tomography (CT) is the first-line diagnostic study for the diagnosis of any non-specific abdominal pain. CT can detect an anomaly in the pre-sacral space, but it cannot always distinguish the benign or malignant nature of the RRT [17]. This distinction usually requires combining CT with endoscopic ultrasonography (EUS) [18]. A lesion that is homogeneous on CT favors a benign RRT. On the other hand, a non-encapsulated, heterogeneous lesion that enhances after injection of contrast material favors the diagnosis of a malignant RRT [19]. CT allows evaluation of the relation between the RRT and neighboring organs: uterus, rectum, bladder, ureters, (Fig. 1) and also allows planning of pre- or post-operative radiotherapy [9].

Rectal endoscopic ultrasound

Rectal endoscopic ultrasound is a useful test for evaluating the relationship between an RRT and the rectal wall and sphincter [7,16]. It is highly sensitive if combined with rigid proctoscopy [15]. For small lesions, endoscopic ultrasound coupled with CT allows visualization of any extension of the RRT, infiltration of neighboring organs, and differentiation of whether the lesion is solid or liquid, unilocular or multicystic, and the presence of invasion of the rectal muscularis. This helps guide the diagnostic assessment with regard to the lesion's histological nature and the T stage of the TNM classification [9,12,14,20].

Abdominal-Pelvic Magnetic Resonance Imaging

Magnetic resonance imaging (MRI) plays a predominant role in the diagnostic approach to RRT. MRI provides indications of the histological type of lesion and informs the choice of the surgical approach, providing information on the structure and the solid or liquid composition of the RRT, its location in relation to the middle of the S3 vertebra, and its anatomical relations with neighboring structures [16,21]. MRI is more effective than CT in the characterization of RRT [22]. It differentiates between benign and malignant tumors, with a sensitivity of 81% and a specificity of 83% for the pre-operative diagnosis of malignancy [23]. It accurately visualizes the plane between the RRT and the pre-sacral fascia [9] (Figs. 2 and 3). Predictive signs on MRI evoking a malignant RRT are: a heterogeneous lesion of solid nature, with irregular boundaries, located above the S3 vertebra, with a hyposignal in T-1 sequences, a T-2 hypersignal, enhancement after gadolinium injection, invasion of neighboring organs, and destruction or remodeling of the sacrum [6,17,19,24].

MRI can also eliminate the diagnosis of meningocele prior to embarking on any therapeutic management of an RRT. The diagnosis of anterior meningocele contraindicates any needle puncture, which may be result in serious complications, such as meningitis [16,25].

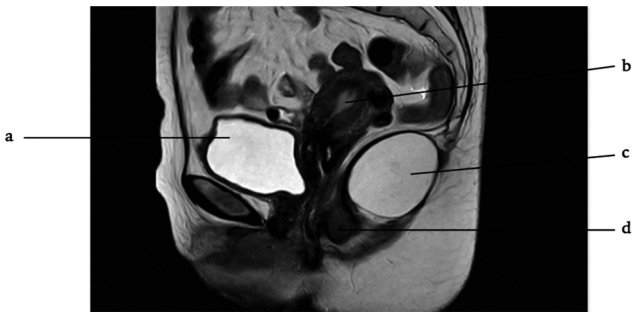

Figure 2. MRI sagittal section (T2) of a retro-rectal dermoid cyst in a 54-year-old patient, with abdominal pain. a): bladder, b): uterus, c): cystic retro-rectal lesion, 51 × 52 × 46 mm, compressing levator ani muscle and rectum, homogeneous, with well-delineated limits, characterized by a T2 hypersignal; d): rectum.

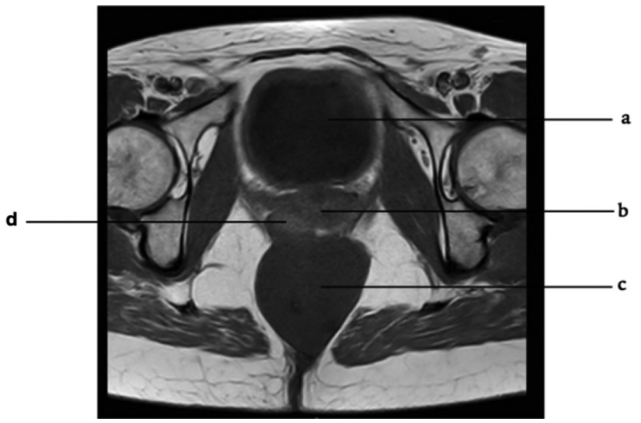

Figure 3. Same patient as Fig. 2. Cross section of a dermoid Cyst in T-1 MRI sequence : a): bladder, b): uterus, c) retro-rectal dermoid cyst in T-1 hyposignal, with homogeneous content, d): rectum.

Pre-operative biopsy

Pre-operative needle biopsy of RRT is controversial since it is not very contributive and is associated with a diagnostic error rate of up to 44% [3]. Needle biopsy is not indicated for tumors with a benign and resectable appearance, such as cystic RRT [17]. Needle biopsy is indicated for tumors that

appear solid or appear to be unresectable [5]. It should not be proposed for benign tumors, given the high risk of complication: secondary infection, bleeding and rectal fistula. For tumors of solid or non-resectable appearance, biopsy allows the determination of the most appropriate therapeutic attitude by allowing referral for neoadjuvant treatment, such as chemotherapy and/or radiotherapy [9,17].

RRT needle biopsy should not be transperitoneal, transretroperitoneal, trans-rectal, or trans-vaginal [26] because these routes are associated with a high risk of superinfection, a difficult secondary surgical excision, and increased risk of peri-operative complications and tumor recurrence. For malignant RRT, any pre-operative needle trajectory must be resected *en bloc* with the lesion during surgical excision, in order to reduce the risk of recurrence. Ideally, transdermal perineal or pre-sacral CT-guided percutaneous biopsy should be performed because the biopsy path is included within the scope of the RRT surgical resection [5,15,26]. A covered needle should be used to limit the risk of spread, especially in suspected cases of sarcoma. It has been shown that for perirectal solid lesions, percutaneous pre-operative biopsy has a sensitivity of 96% and a specificity of 100% [23].

Therapeutic management

The therapeutic management of RRT should be surgical if possible and multidisciplinary. It may require collaboration between visceral surgeons, neurosurgeons, orthopedic surgeons and plastic surgeons [7,27]. Surgical resection of the RRT must be complete, to avoid the risk of recurrence, superinfection or malignant degeneration of a fragment left in place. A monobloc resection must be performed without breaking into the RRT, especially when malignancy is suspected.

When imaging suggests a benign lesion, an approach that preserves the neighboring organs should be preferred. Pre-operative information provided to the patient is important, especially with regard to the risk of peri-operative rectal injury with its accompanying risk of colostomy. Pre-operatively, a colonic preparation is therefore desirable [28].

Anatomical reminders

The retro-rectal space is limited posteriorly by the pre-sacral fascia of Waldeyer and communicates superiorly with the retroperitoneum. There are four different surgical approaches to this space: the anterior abdominal approach, perineal (trans-rectal and retro-anal), posterior approach (Kraske), or combined abdomino-sacral (Fig. 4).

Indications, advantages and disadvantages of different surgical approaches to RRT

The criteria for determining the most appropriate surgical approach are: the size and location of the RRT relative to the middle of the S3 vertebra [4,12,30], the tumor characteristics as assessed by imaging and/or biopsy results, and possible extension to neighboring organs: sacrum and pelvic organs. The advantages and disadvantages of each of the approaches must also be considered [6,31]. MRI, as described above, is the test of choice for selecting the most appropriate surgical approach [27].

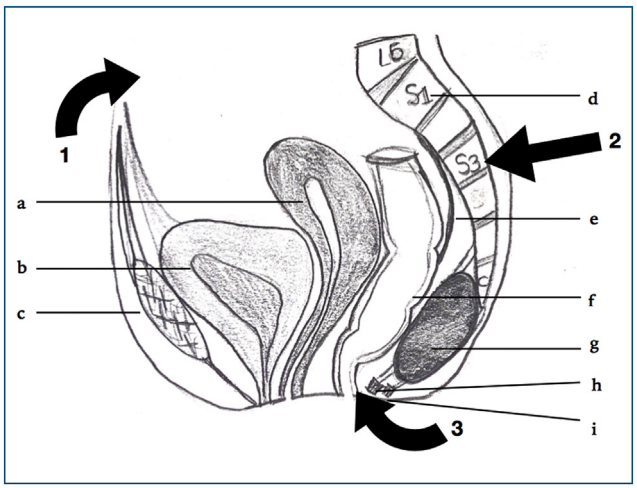

Figure 4. Anatomy and surgical approaches of retro-rectal tumors. 1: the abdominal route 2: the trans-sacral posterior route, 3: the perineal route, 1 + 2: the combined abdomino-sacral route. a): uterus, b): bladder, c): pubic symphysis, d): sacrum, e): Waldeyer's fascia, f): rectum, g): retrorectal tumor, h): levator ani muscle, i): anococcygeal ligament.

Abdominal approach

The abdominal approach is indicated for RRT lying above the middle of the S3 vertebra, whether of benign or malignant appearance, providing that there is no invasion of the sacrum or nerve involvement, and no involvement of a neighboring pelvic organ [8,29,32]. A monobloc excision without effraction of the RRT should be performed. This technique carries the risk of incomplete tumor excision, difficult access for very low tumors, and nerve damage to the hypogastric plexus. However, it allows a good initial exploration of the organs of the pelvis, location of the iliac vessels and the ureters, without breaking through the pre-sacral fascia. It is moderately traumatic and bloodless (Fig. 5). This surgical approach can be performed by either laparotomy or laparoscopy. The laparoscopic approach can reduce the duration of intervention, the duration of hospitalization, and the risk of recurrence, because it allows better visualization of the pelvis and facilitates the dissection compared with open laparotomy [3]. Laparoscopic resection is a safe and feasible technique, with low morbidity and a 92% rate of R0 complete resection. It can be proposed even for some RRTs below S3, unlike the abdominal laparotomy approach. Post-operative complications after laparoscopy are not significantly increased compared to open laparotomy, but there is a risk of rectal perforation for small RRTs below S3, and a risk of conversion to laparotomy [33].

Perineal approach

The perineal approach is preferred for small tumors (less than 5 cm) located below the middle of S3 (Fig. 6) with benign characteristics on imaging [4,16]. This approach includes either the trans-anorectal or retro-anal pathway. The trans-anorectal route is mainly indicated for infected cysts and/or fistulization into the rectum. The retro-anal route is indicated only for very low-lying lesions relative to the sacrum (Figs. 7 and 8). The perineal approach is contraindicated for tumors suspected of malignancy, even very early lesions. It avoids the risk of damage to the sacral nerves and lowers the risk of damage to the sphincter mechanism [34].

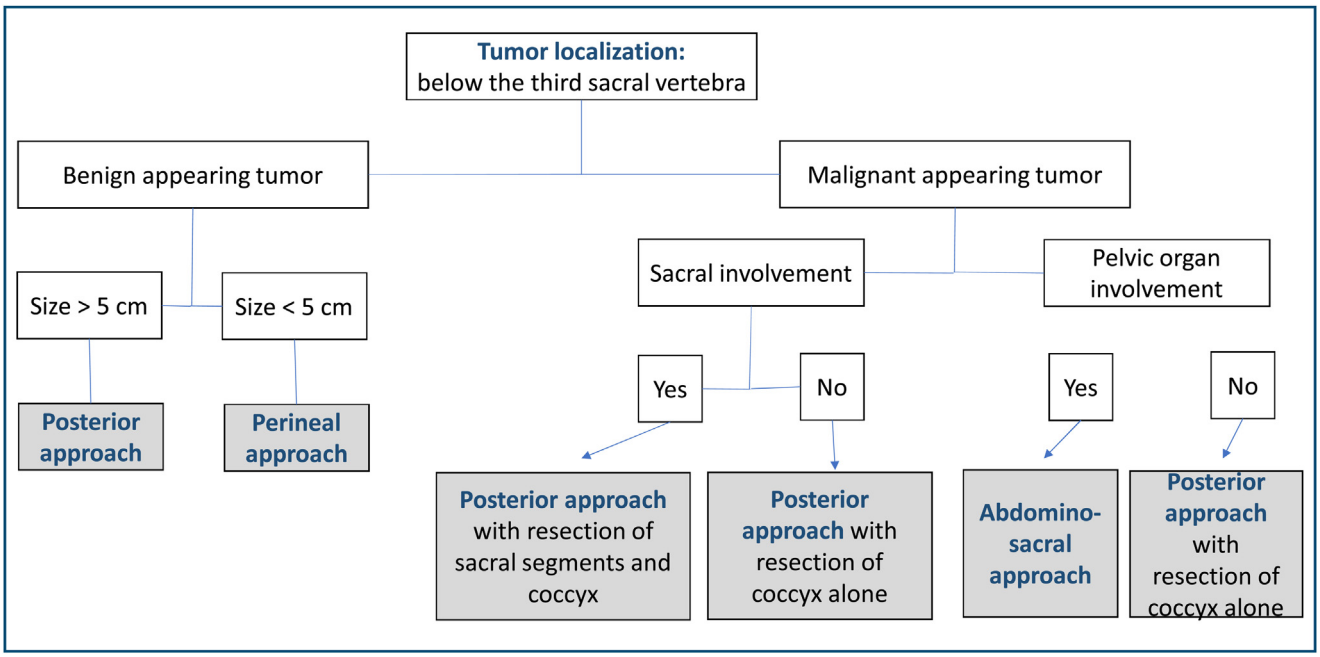

Figure 5. Algorithm for the surgical management of retro-rectal tumors located above of the middle of the third sacral vertebra.

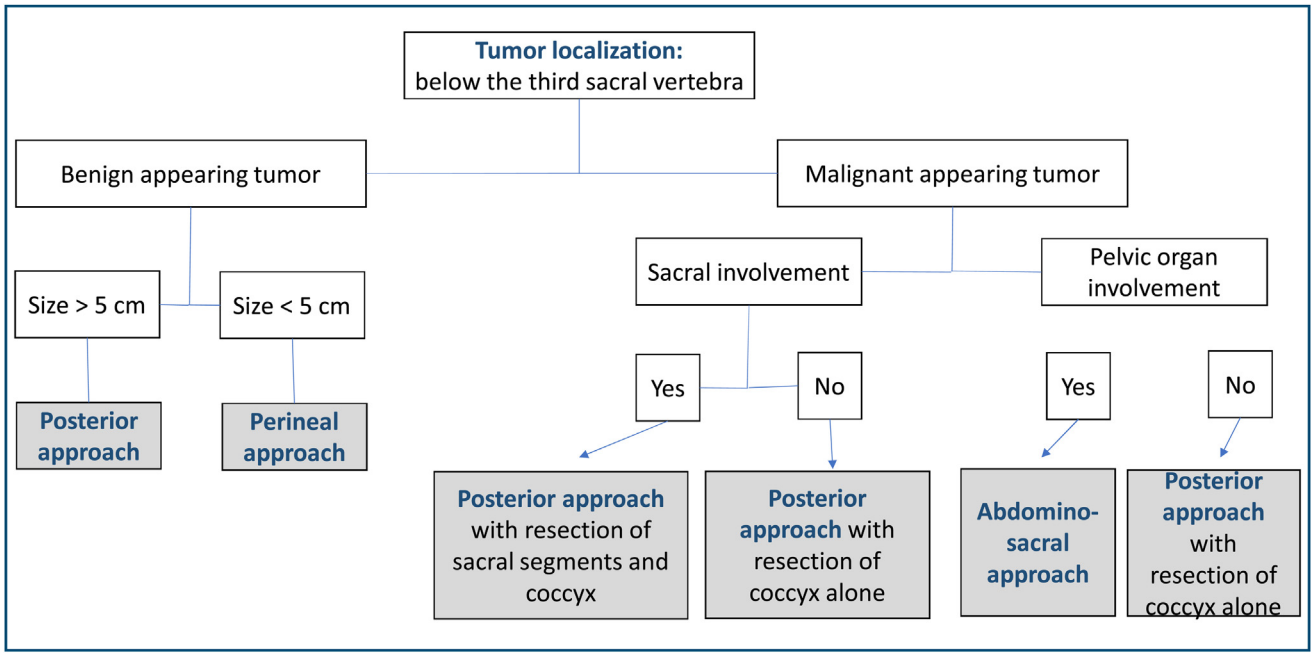

Figure 6. Algorithm for the surgical management of retro-rectal tumours located in the below the middle of the third sacred piece.

The disadvantages of this approach are poor exposure, with limited visualization of the rectal space, which prevents complete assessment of extension. There are also risks of incomplete tumor resection, secondary superinfection, hemorrhage and post-operative anal incontinence [35].

Posterior approach

The posterior route is indicated for RRT located below the middle of S3 (Fig. 6): either for benign-appearing tumors larger than 5 cm, or for malignant appearing tumors, whether solid or cystic [29,36,37]. The main feature of this approach is that it allows excision of the coccyx and sacral vertebrae *en bloc* with the RRT, in case of bone invasion. This approach can be via the trans-coccygeal route, posterolateral parasacrococcygeal route or a trans-sacral pathway, carried out according to the Kraske technique, which is the most commonly used in the literature [20,37]. The Kraske technique allows good exposure and a monobloc resection of the tumor [38]. Careful fine dissection of the sacral nerves reduces the risk of erectile dysfunction and dysuria compared to the isolated abdominal pathway, and allows dissection in contact with the rectum to be controlled by intra-operative rectal examination [8], in order to reduce the risk of rectal injury [29]. Resection of the coccyx not only improves exposure, but also helps prevent the recurrence of teratomas and suspicious cystic tumors.

It is a traumatic approach, with a risk of post-operative perineal incisional hernia and high rectal fistula. Septic complications are possible, such as pelvic abscess or sacral

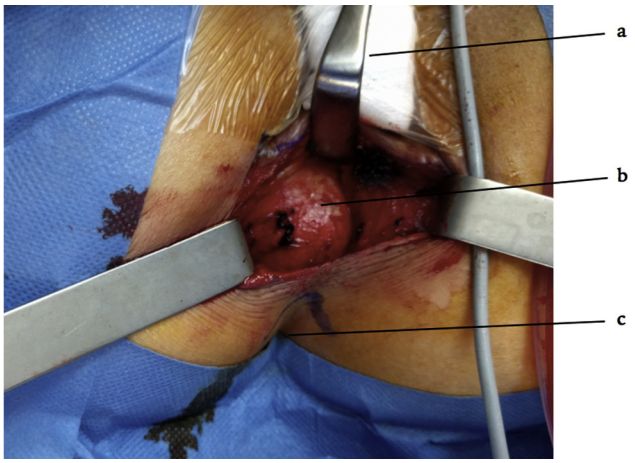

Figure 7. Intra-operative view of retro-anal approach, in a 54 year female with a dermoid cyst . a):location of the anus, hidden by swabs, b): cyst exposed after vertical division of the anococcygeal ligament, c): Coccyx location.

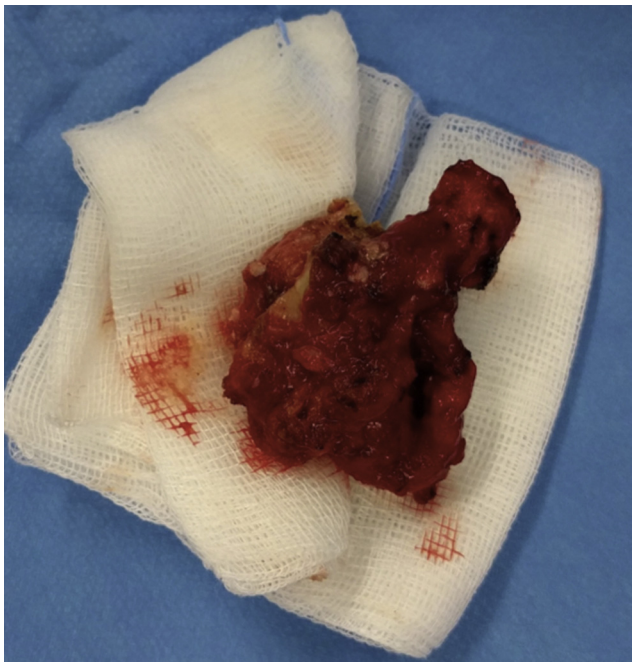

Figure 8. Surgical specimen: en bloc resection of dermoid cyst.

osteomyelitis. Cystic lesions larger than 5 cm can be excised by this route, but there is a significant risk of intra-operative rupture, which increases the risk of dissemination of tumors that prove to be malignant on final pathology. The excision may be extended to include sacral segments, either to improve visualization or to assure clear margins. Sacral segments can be sacrificed up to the level of the middle of the second sacral segment; however higher sacral resection entails the risk of loss of pelvic stability and of neurological complications, particularly the innervation of the sphincteric mechanism [8,12]. So it is important to mark the skin pre-operatively next to the second sacral segment. Rectal resection is rarely necessary, but colonic preparation should be routine in the event of rectal perforation, and to mark abdominal skin preoperatively in case there is need to perform a stoma [32].

The advantage of this technique is monobloc resection, which is a major factor in the prognosis and survival of patients and in the risk of recurrence. The major drawbacks are the risk of nerve damage to the lateral pelvic nerves and the inability to control the pelvic vessels, which can make this pathway very hemorrhagic [36]. The Kraske technique has a post-operative morbidity of about 13%, related to the resection of sacral segments; other potential complications are pain with sitting, post-operative infection (sacral osteomyelitis, meningitis), and disorders of rectal motility and evacuation due to injury of the ventral roots of the third and fourth sacral nerves [27,32,35].

The abdominal-sacral or combined approach

A dual abdominal and sacral approach is indicated for bulky solid or cystic tumors [12]. This is achieved by following the plane between the mesorectum and the pre-sacral fascia.

It is indicated for malignant-appearing RRT located above the middle of S3 that appear to involve the sacrum or a pelvic organ [9,27] (Fig. 5). For RRTs lying lower than the midpoint of S3, it should be preferred when there is associated involvement of a pelvic organ (Fig. 6). It allows wide resection of RRTs with low morbidity. The iliac vessels can be temporarily clamped via the anterior approach minimizing the risk of hemorrhage during sacral resection by the posterior approach.

The advantages of this combined approach are wide exposure, allowing for oncologic curative treatment and control or ligation of the internal iliac and sacral vessels, which decreases the bleeding risk associated with the isolated Kraske pathway. But this double approach combines the disadvantages of the abdominal and posterior approaches. It is very traumatic and may be associated with major functional orthopedic complications, such as pelvic girdle instability, neurological complications such as urinary sphincter and anorectal disorders, and perineal and/or lower limb sensory-motor deficits.

Post-operative complications

There are 15 large series reported in the surgical literature with at least 30 patients operated for RRT (Table 2). These series bring together 749 patients, with an average age of 45 years. The surgical approach was abdominal in 166 patients (22%). posterior or perineal in 431 (58%), and abdomino-sacral in 61 (8.1%). In these 15 studies, the overall rate of post-operative complications was 25%, including post-operative hemorrhage, surgical site infection, rectal injury, neurological complications, and urinary incontinence.

The specific morbidity for each surgical approach is reported in only five studies [5,6,19,39,40]. The specific morbidities of the isolated abdominal approach, the posterior approach (with the perineal approach included) and the abdominal-sacral approach are 11%, 8%, and 6% respectively. Hospital stay is shorter for posterior RRT resection than for abdominal or abdomino-sacral resection [5,6,40]. In these published studies, the number of complications is more often analyzed according to the histological nature of the RRT than according to the surgical approach. In fact, the choice of the surgical approach does not significantly influence the rate of long-term post-operative complications, which depend mainly on the histological type of RRT [5].

Neoadjuvant and adjuvant treatments

Non-surgical treatment may be proposed for chemosensitive tumors, such as large B cell lymphoma and Ewing's or

Table 2 Details from the 15 principal series of retro-rectal tumors (number of cases > 30).

Authors	Number of cases	Mean age (years)	Percentage of malignant tumors %	Surgical procedures (AA/P/Pr/C) (number of cases)	Mean hospital stay	Overall morbidity (number of cases and percentage (%))	Specific morbidity by type of surgical approach (number of cases and percentage (%))
Uhlig. 1975 [2]	63	–	51	–	–	–	–
Jao et al. 1985 [1]	120	43	42,5	21/79/0/2	–	–	–
Vorobyov et al. 1992 [41]	36	52	0	0/6/10/5 (+12 endoscopic cautery excision + 1 transvaginal)	–	11(30.5%)	–
Wang et al. 1995 [42]	45	41	48	24/13/0/6	–	16 (35.5%)	–
Lev-Chelouche et al. 2003 [10]	42	40	50	18/21/0/3	–	Benign tumors: congenital: 3 (25%); acquired: 0%. Malignant tumors: congenital: 3 (30%); acquired: 0%.	–
Glasgow et al. 2005 [5]	34	47	23.5	14/7/11/9	Malignant tumors = 12 days Benign tumors = 5.7 days.	4 (11%)	P: blood loss > 2 other approaches
Grandjean et al. 2008 [16]	30	43	3	2/23/6/2	–	–	–
Mathis et al. 2010 [40]	31	52	13	9/20/0/2	P = 2.6 days AA + C = 6.9 days	8 (25.8%)	AA + C: 6 (19.3%) P: 2 (6.4%)
Gao et al. 2011 [39]	39 including 36 operated	39.5	15	8/26/0/2	–	–	AA: 3 (8.3%) P: 4 (11%) C: 1 (2.7%)
Lin et al. 2011 [43]	62	40	22,6	8/52/0/2	–	9 (14.5%)	–
Li et al. 2011 [44]	33	48.5	12	8/52/0/2	–	5 (16.1%)	–
Macafee et al. 2012 [19]	56	–	37,5	27/20(P + Pr)/9	–	20 (35.7%)	AA: 10 (17.8%) P/Pr: 4 (7%) C: 6 (10.7%)
Bosca et al. 2012 [25]	30	47.5	66.7%	2/10/5/2	–	20 (66.6%)	–
Chéreau et al. 2013 [6]	47	45	19	0/42/0/5	P = 7 days C = 15 days	3 (6.4%)	P: 3 (6.4%) C: 0
Messick et al. 2013 [45]	87 including 84 operated	52	26	25/49/0/10	–	–	–
Total	749	45.5	30.7	166/431(P + Pr)/61		192 (25%)	AA: 11% P: 7.6% C: 5.8%

AA: Abdominal approach; P: Posterior approach; Pr: Perineal approach; C: Combined abdomino-sacral approach.

osteogenic sarcoma, or in a palliative setting for metastatic RRT. Combined radiochemotherapy should be proposed as a ''neoadjuvant'' for lymphomas and as an adjuvant for sarcomas [17,25].

The role of radiotherapy is poorly defined, since few randomized studies have been conducted due to the low incidence of RRT. Neoadjuvant radiotherapy for chordomas is usually proposed to shrink tumor boundaries prior to excisional surgery [26], despite the fact that chordomas are resistant to standard doses of radiotherapy [26]. Radiotherapy may also be offered as a high-dose adjunct in cases of incomplete chordoma excision, or local infiltration, thereby increasing the interval without recurrence after surgery. Radiotherapy seems to delay tumor recurrence but does not prevent it [12,17,25]. Currently, neo-adjuvant or adjuvant immunotherapy is being developed for chordoma, gastro-intestinal stromal tumors (GIST), Ewing sarcoma and osteogenic sarcoma [26].

Place of therapeutic abstention

Therapeutic abstention has little place in the management of RRT [33]. Even for benign and non-symptomatic lesions, surgical management should be proposed as first-line therapy [10] because of the predictable risk of malignant degeneration, the risk of diagnostic error in imaging, the risk of tumor growth leading to compression of adjacent organs thereby making resection more difficult, and the risk of secondary infection [8].

However, close monitoring with MRI has been proposed for purely cystic RRT lesions [30] to avoid the drawbacks of surgery. However, surveillance must be active and prolonged to identify the first signs of malignant degeneration. Moreover, in the case of cystic RRT with superinfection, second-line surgery is more difficult, with increased morbidity and risk of recurrence [8]. First-line surgery therefore remains the standard treatment.

Conclusion

RRT excision is a complex surgery, because of the anatomical relationships of the rectal space. A multidisciplinary approach is often necessary. MRI is the essential complementary examination to establish the diagnostic and therapeutic orientation for surgical management. Pre-operative aspiration is controversial and should be reserved for malignant or non-resectable RRT.

Surgical excision of RRT is recommended as first-line therapy, even for asymptomatic benign forms. Resection must be complete and without tumor effraction. The choice of surgical approach depends on the size and location of the tumor relative to the middle of the S3 vertebra and whether there is extension to neighboring organs. There are four different approaches: isolated abdominal, perineal, posterior, and abdomino-sacral. The main intra- and post-operative complications are hemorrhage, neurological injury and secondary infection. Resection can be extended to include neighboring structures depending on the nature of the tumor, and can be supplemented with radiotherapy or adjuvant chemotherapy. The prognosis of RRT is usually favorable.

Key points

- Retro-rectal tumor (RRT) is a rare tumor in adults. The annual incidence is estimated between 0.0025% and 0.014% in the general population.
- MRI is the key examination to assess the nature of RRT and to choose the most appropriate surgical approach. Pre-operative needle biopsy is indicated only for malignant or unresectable RRT based on imaging evidence.
- The recommended treatment of RRT is monobloc resection, without tumor effraction, even for asymptomatic and benign tumors.
- There are four surgical approaches: abdominal, perineal, posterior and combined abdominosacral. The choice is based on tumor size, benign or malignant character, the location relative to the middle of the S3 vertebra, and possible extension to the neighboring structures and organs.
- Post-operative morbidity is about 25%, mainly related to hemorrhagic, infectious, or neurological complications, including sphincter disorders.
- The prognosis of RRT is generally favorable.

Disclosure of interest

The authors declare that they have no competing interest.

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