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# Pandora's box and retrorectal tumors in laparoscopy: A case report and review of the literature



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## ABSTRACT

**INTRODUCTION:** Retrorectal tumors are uncommon and the etiology diverse. Literature to define the preoperative diagnosis and plan the intraoperative management are uncommon.

**PRESENTATION OF CASE:** We describe a case of a 44 year old patient with a laparoscopic approach for the removal of a retrorectal tumor and emphasize on the preoperative diagnostics and the intraoperative, minimal invasive approach.

**DISCUSSION:** Especially because these tumors are rare and often an incidental finding in gynecologic surgery, it is important to know the various differential diagnoses and its consequences with the laparoscopic approach.

**CONCLUSION:** We suggest the laparoscopic approach in cases of retroperitoneal cysts of unknown origin is ideal also because anatomic structures, mostly nerves, can be easily spared.

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## 1. Introduction

Retrorectal tumors are uncommon with an incidence of about 1 in 40,000 patients [1,2]. This small group of tumors may present with various histological findings. The etiology of retrorectal tumors can be divided into five groups: congenital, inflammatory, osseous, neurogenic and others [3,4]. 60% of retrorectal tumors arise from embryologic tissues [5,6]. Depending on the cell layer of origin, these cysts can be divided into the following types: epidermoid cysts, dermoid cysts, enterogenous cysts, tailgut cysts, and teratomas [7]. Histological findings of these cysts commonly confirm inflammatory signs or abscess formation potentially due to microtrauma [8]. A malignant transformation is very rare but has been described in the literature [2,9]. 81% of patients with a retrorectal tumor are middle-aged women and often these cysts are falsely identified preoperatively as adnexal masses resulting in gynecologists treating these patients. Preoperative diagnostics of these tumors are of great importance because of the wide variety of origin. We present a case of a laparoscopic approach for the

removal of a retrorectal cyst and review the literature emphasizing the laparoscopic approach and preoperative diagnostics.

## 2. Case report

Due to the feeling of pelvic pressure and dyschezia, a 44 year old patient was diagnosed with a 6 cm × 5 cm adnexal mass, which was detected by vaginal examination and confirmed by ultrasonography. After a three-month treatment with oral gestagens, the mass grew to a size of 6 cm × 7 cm and laparoscopic removal was suggested. Intraoperatively, both ovaries were surprisingly normal. A retroperitoneal cystic mass was seen on the left side of the pelvis and the surgeon decided to admit the patient to the university clinic for further treatment.

Preoperative MRI (magnet resonance imaging) (Fig. 1) showed a mostly retrorectal tumor measuring 6 cm × 7 cm. Tumor markers (CA-125, CEA, alpha-fetoprotein, HCG) were normal. Because a Tarlov cyst could not be excluded, a myelography was performed, this was normal. We decided to approach this retrorectal tumor by laparoscopic surgery.

After identifying the ureter, the peritoneum was opened longitudinally (Fig. 2). The cystic mass was identified lying retrorectally (Fig. 3). Whilst sparing the splanchnic nerves (Fig. 4), the cyst could be dissected and removed without rupturing the capsule. Operating time was 90 min. Blood loss of less than 100 ml was measured. No intraoperative complications occurred. Histology showed an

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**Table 1**  
Retrorectal tumors published in the surgical literature.

Authors	Cases	Sex	Diagnosis	Approach	Size (cm)	Preoperative diagnostics	Complications intraOP comments	Removal of tumor
Sharpe 1995	1	F	Dermoid cyst	Laparoscopy	5 × 3 × 2		None	Exzision in toto
Melvin 1996	1	F	Schwannoma	Laparoscopy	2.2 × 2.5	MRI, CT	None	Exzision in toto
Salameh 2002	1	F	Rectal duplication cyst	Laparoscopy	5 × 5.3 × 6	MRI, CT	None	Exzision in toto function intraoperative with suction of the fluid
Köhler 2003	1	F	Ganglioneurofibroma	Laparoscopy	10 × 8.5 × 7	US, MRI	None	Exzision in toto
Bax 2003	5	F	Sacrococcygeal teratomas	Laparoscopy and post sacral	NA	–	One was only ligation of artery and one had to be converted because of size of tumor (all children)	All Exzision in toto removed all also over posterior path, The main goal was mobilization of the cystic structures and lig. of the sacral artery
Lukish 2004	2	F	Sacrococcygeal teratomas	Laparoscopy and post sacral	10 × 5 × 4:15 × 15 × 10	MRI	None	Both Exzision in toto via sacral incision, LSC ligation of the spinal artery
Konstandtidinis 2005	2	F	Schwannomas	Laparoscopy	2.5 × 4:3 × 6	CT, MRI	None	Exzision in toto
Gunkova 2008	1	F	Tubeoendometrial metaplasia cyst	Laparoscopy	10 × 8 × 6	CT	None	Exzision in toto
	1	F	Epidermoid cyst	Laparoscopy	10 × 5.5 × 5	CT		
Chen 2008	1	F	Teratoma	Laparoscopy	10 × 8.5 × 8	CT	None	Exzision in toto
Palanivelu 2008	1	F	Epidermoid cyst	Laparoscopy and perineal incision	16 cm × 10 cm	US, CT	None	Cyst first functioned in LSC, then Exzision in toto perineal
Bon 2011	15	13F, 2M	4 teratoma, 4 neurilemomma 1 chondrosarcoma	4 LSC, one combined with post. approach	Mean 6.2 cm	CT, MRI	None	All LSC Exzision in toto without capsule rupture
Lim 2011	1	F	Tailgut cyst	Laparoscopy	3.9 mm × 3.3 mm	CT, MRI	None	Exzision in toto
Rao 2010	1	F	Schwannoma	Laparoscopy	90 mm	MRI	None	Exzision in toto
Lu 2010	1	F	Tailgut cyst	Laparoscopy	12 cm × 10 cm	US, CT	None	Tumor ruptured intraoperative, Exzision in toto
Nishi 2000	1	F	Neurogenic tumor	Laparoscopy	–	–	None	Exzision in toto
Asuquo 2011	1	F	Myelolipoma	Laparoscopy	3.5 × 1.7	PET CT	None	Subtotal excision because histology in frozen section benign
Marinello 2011	4	F	Teratoma	Laparoscopy	11 × 5.5 × 3.5	CT	None	Exzision in toto
		F	Solitary fibrous tumor	Laparoscopy	7.5 × 4.4 × 4.4	US, MRI	None	
		M	Schwannoma	Laparoscopy and post sacral	10 × 6 × 1.5	MRI	Wound infection	
		M	Schwannoma	Laparoscopy	6.5 × 6 × 4	MRI	Residual collection	
Nedelcu 2013	9		4 schwannoma	Laparoscopy	Mean size of the tumor 6.8 cm (range 3–11.5)	All MRI	1 conversion	Exzision in toto
			1 para ganglioma					
			2 tailgut cyst					
			1 meningocele					
			Ganglioneuroma					



Fig. 1. MRI showing a 6 cm × 7 cm retrorectal tumor (♣).

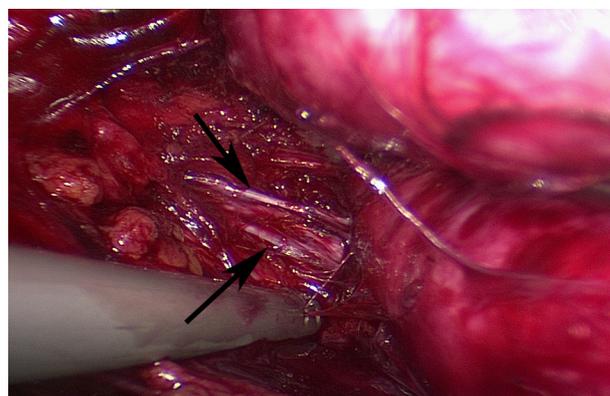


Fig. 4. Splanchnic nerves.

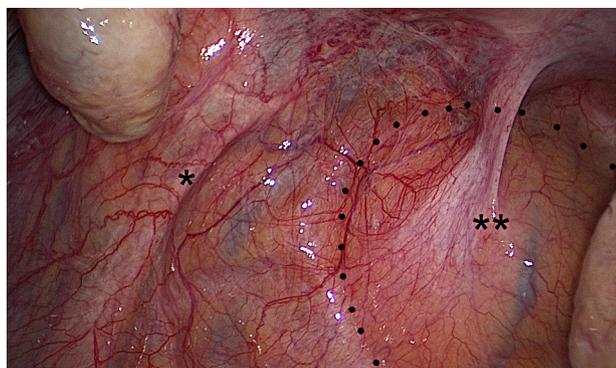


Fig. 2. Intraoperative findings: one star: ureter, two stars: sacrouterine ligament, dotted line: tumor.

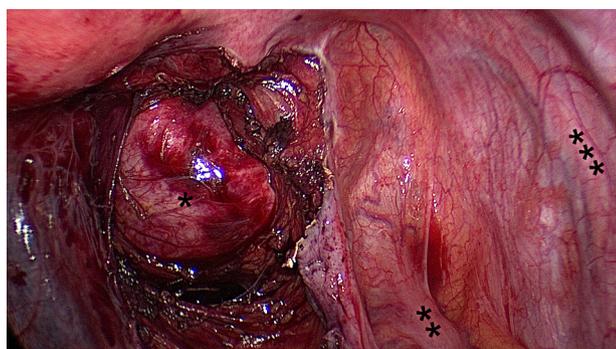


Fig. 3. One star: tumor lying retrorectal after opening the peritoneum, two stars: sacrouterine ligament, three stars: ureter.

epidermoid cyst with no signs of malignancy. The patient had an uncomplicated recovery.

**3. Discussion and conclusion**

Despite retrorectal tumors being published in the surgical literature (Table 1) they are almost absent in the gynecological journals. Few complications are described and all but one of the tumors could be removed totally, thus showing the feasibility of the laparoscopic approach.

In all cases, a preoperative MRI and/or CT scan were performed. There were no cases with ultrasound diagnostics only.

If a retroperitoneal cyst is seen intraoperatively the operation should be adjourned and as next step an adequate diagnostic performed. An opening of a Tarlov cyst can have lethal consequences. Tarlov cysts are perineural cysts of the lumbosacral nerves, which can extend deeply in the pelvic region, looking like normal retroperitoneal cysts [10]. The incidence of Tarlov cysts is 4.6% in the general population; they are mostly asymptomatic [11,12]. Because the patients are operated in Trendelenburg position, when the cysts are opened the patient may not present any symptoms before the cerebrospinal liquid leaks intra-abdominally when the patient's position is changed, this being possibly lethal.

For the diagnosis of retroperitoneal tumors in the pelvis, an MRI is the most helpful method [13]. If a Tarlov cyst cannot be excluded, a myelography should be performed. A function of a retrorectal tumor should be avoided in case of malignancy. After careful preoperative diagnostics, most retroperitoneal and retrorectal tumors can be removed by laparoscopic approach. The goal is to remove the tumor entirely to avoid malignant cell spillage or abscess formation [5,14–16].

In conclusion, we suggest the laparoscopic approach in cases of retroperitoneal cysts of unknown origin because direct visualization deeply into the pelvis is ideal and anatomic structures, mostly nerves, can be easily spared.

**Conflict of interest**

All authors have no conflict of interest.

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**Ethical approval**

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy

of the written consent is available for review by the Editor-in-Chief of this journal on request.

### Author contributions

Sara Imboden: collection of clinical data, writing of the manuscript; Amal al-Fana, Annette Kuhn: Revision of manuscript, elaboration of table; Michel D Mueller: operation performed, literature analysis, revision of manuscript.

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