Case report

# Retroperitoneal cystic lesion: an unusual first manifestation of metastatic testicular cancer.

Biomedicine and Surgery

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## ABSTRACT

Retroperitoneal and intraabdominal cystic lesions are rare entities, and pose diagnostic and therapeutic challenge. All those lesions should be managed case by case, based on previous medical history, diagnostic imaging features and eventually percutaneous cytological analysis. In case of uncertain preoperative diagnosis, malignancy should always be ruled out with surgical removal or biopsy.

**KEY WORDS:** nonseminomatosus germ cell testicular tumor; brachiogenic cyst; germ cell tumors; seminomas; nonseminomas; teratoma; surgery

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## INTRODUCTION

Retroperitoneal and intraabdominal cystic lesions are rare entities, and pose diagnostic and therapeutic challenge. This group constitutes of many different diseases, which can be divided into neoplastic and non-neoplastic lesions (1). Despite improvement of radiographic imaging techniques (MSCT and MRI), many cystic lesions cannot be accurately classified. The decision to operate on a patient with a cystic lesion is determined by the presence of symptoms, risk for complications (rupture, infection) and a possibility of malignancy. With transabdominal laparoscopic approach an adequate exploration of the cystic lesion and resectability can be achieved. Complete excision is preferred over simple fenestration or marsupialization of the cyst. In this paper, we present a case of a 42-year old male, with a history of parapharyngeal brachiogenic cyst and two fast-growing intraabdominal metastatic cystic lesions from teratomatic component of nonseminomatosus germ cell testicular tumor.

## CASE PRESENTATION

A 42-year old male was admitted to the Department of Gastroenterology in our hospital in March of 2017 with a large and fast growing intraabdominal mass, that he first noticed 3 weeks before. Besides abdominal distension and sense of abdominal fullness, he didn't report any bowel or urinary tract symptoms or weight loss. Concerning his medical history, in 2015 he had an operation of hypo-pharyngeal cyst, histologically it was brachiogenic cyst. On examination, there was a large, fixed mass in the right hemi-abdomen, measuring around 20 cm in diameter, which was painless. Routine blood test, CRP, liver test and urinalysis were all within normal limits. Ultrasonography showed a 14 cm in size cystic mass with a solid part, located beneath the lower pole of the right kidney. Computed tomography of the abdomen and pelvis showed a cystic lesion 14x12x9 cm in size, located in right hemi-abdomen, beneath the right kidney with compression of the vena cava and right ureter and with the dilatation

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of the right pyelon. There were no signs for the infiltration of the surrounding structures or lymph node involvement. Chest radiography showed no abnormalities.

Because of the rapidly progressing intraabdominal mass, he was operated immediately. Exploratory laparotomy revealed two large cystic tumors, both measuring around 10 cm in diameter. One was located between the aorta and vena cava, with dislodgment of the vena cava to the right; and the second one, located on the medial side of the right kidney, beneath the right renal vein, without involvement of the surrounding organs. Both tumors were extirpated "*in toto*".

A cut section of the mass showed multilocular cysts, measuring 10x9x4 cm and 11x10x5 cm (Figure 1A).

Microscopically, both cysts were lined with stratified and pseudostratified columnar epithelium (Figure 1B), immunohistochemical analysis was CK 7, pan CK and columnar epithelium positive, and calretinin, D240, ER and PR negative.

On the fourth postoperative day, the patient complained about the right testicular swelling, without pain or fever. An ultrasound revealed an inhomogeneous mass measuring 23x24 mm in the right testicle, with an oval macrocalcification of 6 mm and a small hydrocele. The ultrasonography of the left testicle was without abnormalities. Levels of AFP, β-hCG and LDH were normal. Because of the high clinical and ultasonographic suspicion for testicular cancer, right inguinal orchiectomy was performed several days later. Pathological analysis showed a mixed germ cell tumor, measuring 2.5cm, classified as T1Nx (Figure 2A), consisting of seminoma (90%) and teratoma (10%) (Figures 2B, 2C). After the histological analysis of testicular cancer and intraabdominal tumors, intraabdominal tumors were considered to be metastatic lesions from the teratomatic part of testicular cancer, so the patient was presented to oncologic multidisciplinary team in our hospital.

Multidisciplinary oncological team indicated further diagnostics, including CT scan of thorax, abdomen and pelvis. Thoracic CT scan showed a mixed solid-cystic mass, 5x2.4 cm in size, located behind the esophagus, from the tracheal bifurcation caudally. In the liver, in the II segment, a hypodense, nodular mass was shown, measuring 1 cm. Magnetic resonance of the liver confirmed a cyst in the II segment, several hemangiomas, but without metastatic lesions.

Also, the endoscopic ultrasound was performed, and gastroenterologist described a mixed solid-cystic mass, behind the esophagus, just in front of the aorta, located from the 29th -34th centimeter from the incisivum,. Fine needle aspiration of the cyst was performed, and analysis revealed a cystic lesion with proliferation of the mesenchymal cells, with low values of AFP, β-hCG and PLAP in the cystic fluid. A month after the orchiectomy, values of β-HCG were <0.100 IU/L, AFP 3 kIU/L, and LDH 214 U/L.

Considering all, multidisciplinary oncological team decided not to operate on a mediastinal mass, so the patient received three courses of PEB adjuvant chemotherapy, consisting of bleomycin, VP-16 and cisplatin.

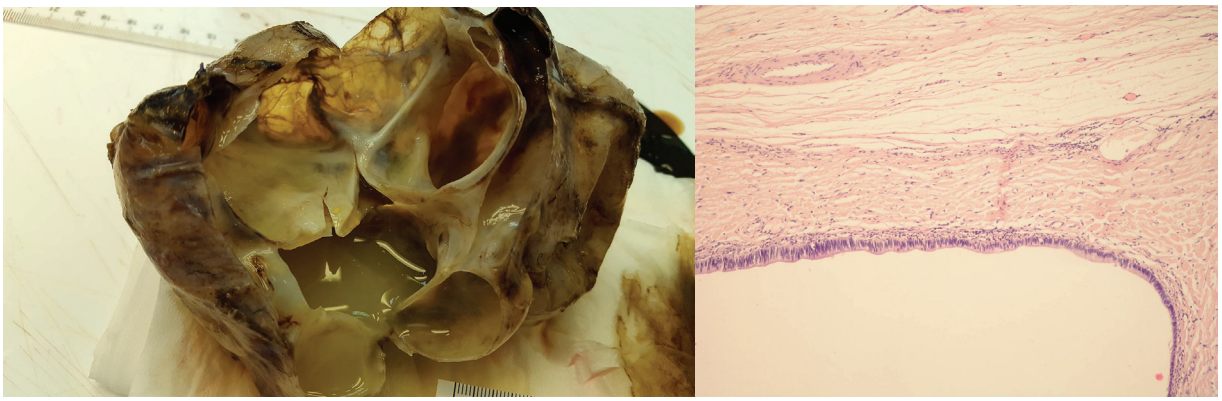

**Figure 1.** A) Macroscopic view of retroperitoneal tumor, showing multicystic thin-walled mass; B) Microscopically cysts were aligned with pseudostratified cylindrical epithelia without atypia (HEx200)

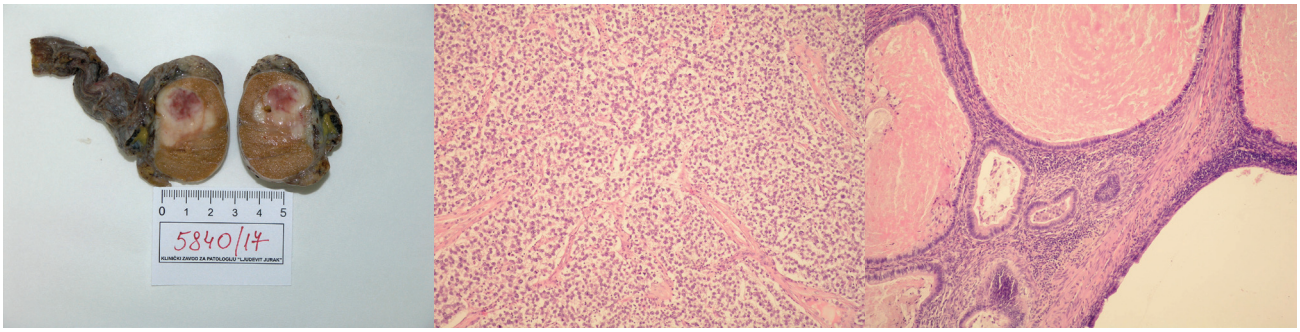


**Figure 2.** A) Macroscopic view of testicular tumor composed of solid gray area and hemorrhagic component; B) Microscopically tumor is composed of seminomatous component (HEx200) and C) teratoma component looking similar to retroperitoneal tumor (HEx200)

## DISCUSSION

Testicular cancer comprise only 1 percent of all cancer in men, and in Croatia, there are 180-190 new cases diagnosed every year, with peak incidence between 25-39 years (2). Ninety-five percent of testicular tumors are germ cell tumors. Histologically, there are two major types of germ cell tumors: seminomas (1/3 of germ cell tumors) and nonseminomas, which can be undifferentiated (embryonal carcinoma) or differentiated (exhibiting a degree of teratoma, yolk sac or choriocarcinoma patterning). Nonseminomatosus germ cell tumors (NSGCT) are the most common neoplasm in male patients younger than 40 years (3). Despite increasing incidence of NSGCT during past 40 years, mortality rates have fallen by 70 percent since the advent of cisplatin based chemotherapy (4,5). For most of the patients with testicular tumor, first presenting symptom is a painless lump or swelling of the scrotum (6). Metastatic disease symptom is a first manifestation in around 10 percent of the patients. Hematogenuos metastases of testicular NSGCT occur in the lung, bone and in the brain, but mostly it metastasizes to the retroperitoneum and subsequently to mediastinal lymph nodes. When primary symptoms are from metastatic disease, in majority of patients the disease presents itself as a neck mass (from supraclavicular lymph node metastasis), cough and dyspnea (pulmonary metastasis), lumbar back pain (retroperitoneal disease with infiltration of psoas muscle or nerve roots), bone pain (skeletal metastasis), GI hemorrhage, vomiting and nausea (retro-duodenal metastasis) or swelling of lower extremities (obstruction or thrombosis of vena cava or iliac vein). Our patient presented with two intraabdominal cystic masses, without any extra-abdominal symptoms. As previously mentioned, intraabdominal and retroperitoneal cystic lesions are rare, and can be divided into neoplastic and non-neoplastic lesions (1). In the differential diagnosis of cystic masses, one should first consider some of the more common pathology: cystic lymphangioma, mucinous cystadenoma, mesenteric and omental cyst, pseudocyst (pancreatic and non-pancreatic), pseudomyxoma peritonei, mucinous carcinomatosis, peritoneal inclusion cyst and echinococcal cyst. Abscesses, seroma, biloma, urinoma or lymphocele can mimic primary peritoneal cystic masses (7). Detailed clinical history with medical examination of the patient, together with imaging findings, should help in accurate diagnosis and management. For majority of cystic lesions surgical removal is the mainstay of therapy, especially if the malignancy cannot be ruled out. In our case, in a patient with a history of cervical brachiogenic cyst (brachiogenic cysts can very rarely be located retroperitoneally) (8) with no history of malignant disease and negative test for echinoccocal disease, we decided to surgically remove both of the cysts. Histologically, cysts were aligned with pseudostratified cylindrical epithelia, without atypia, but when the right orchiectomy was performed, histologic features of the teratoma component of the testicular tumor showed similarities with the intraabdominal tumor. Postoperative diagnostic work-up revealed a similar mediastinal cystic lesion, so the patient received three cycles of PEB chemotherapy because of the metastatic NSGCT. Six months after operation, he is on regular follow-up and disease free.

## CONCLUSION

Retroperitoneal cystic lesions are rare and diagnostically challenging, because today we still cannot accurately make a preoperative diagnosis, based on CT scan and MRI data. All those lesions should be managed case by case, based on previous medical history, diagnostic imaging features and

eventually percutaneous cytological analysis. In case of uncertain preoperative diagnosis, malignancy should always be ruled out with surgical removal or biopsy.

## REFERRENCES

1. Yang DM, Jung DH, Kim H, Kang JH, Kim SH, Kim JH, Hwang HY. Retroperitoneal cystic masses: CT, clinical, and pathologic findings and literature review. Radiographics. 2004; 24(5): 1353–1365. doi: 10.1148/rg.245045017.
2. Incidencija raka u Hrvatskoj 2014. Bilten 39. Hrvatski zavod za javno zdravstvo, Registar za rak Republike Hrvatske: Zagreb, 2016.
3. Vasdev N, Moon A, Thorpe AC. Classification, epidemiology and therapies for testicular germ cell tumours. Int J Dev Biol. 2013; 57(2–4): 133–139. doi: 10.1387/ijdb.130031nv.
4. Levi F, La Vecchia C, Boyle P, Lucchini F, Negri E. Western and eastern European trends in testicular cancer mortality. Lancet. 2001; 357(9271): 1853–1854.
5. Einhorn LH. Testicular cancer as a model for a curable neoplasm: The Richard and Hinda Rosenthal Foundation Award Lecture. Cancer Res. 1981; 41(9 Pt 1): 3275–3280.
6. Bosl GJ, Motzer RJ. Testicular germ-cell cancer. N Engl J Med. 1997; 337(4): 242–253. doi: 10.1056/NEJM199707243370406.
7. Arraiza M, Metser U, Vajpeyi R, Khalili K, Hanbidge A, Kennedy E, Ghai S. Primary cystic peritoneal masses and mimickers: spectrum of diseases with pathologic correlation. Abdom Imaging. 2015; 40(4): 875–906. doi: 10.1007/s00261-014-0250-6.
8. Govaerts K, Van Eyken P, Verswijvel G, Van der Speeten K. A bronchogenic cyst, presenting as a retroperitoneal cystic mass. Rare Tumors. 2012; 4(1): e13. doi: 10.4081/rt.2012.e13.