Laparoscopic Excision of a Retroperitoneal Ganglioneuroma

Orhan Alimoglu, MD, Mujgan Caliskan, MD, Aylin Acar, MD, Mustafa Hasbahceci, MD, Tolga Canbak, MD, Gurhan Bas, MD

ABSTRACT

Objective: Ganglioneuromas are rare benign tumors originating from ganglion cells. Ganglioneuromas are detected incidentally because they are asymptomatic. We report a case of laparoscopic excision of a retroperitoneal ganglioneuroma.

Case Description: A 49-y-old female was admitted to our medical center with the complaint of abdominal pain. Abdominal ultrasound showed a hypoechoic solid lesion at the level of the liver hilum, adjacent to the pancreas. Computerized tomography scan confirmed the presence of a thin walled mass 44 mm in diameter, adjacent to the pancreas and liver. Laparoscopic excision of the retroperitoneal mass was planned. The tumor was removed en bloc, and the pathologic diagnosis was ganglioneuroma. The patient was discharged from the hospital on the third postoperative day without any complications.

Conclusion: Minimally invasive surgery has been shown to be safe and reliable in patients with retroperitoneal tumors.

Key Words: Ganglioneuroma, Laparoscopy, Retroperitoneum.

INTRODUCTION

Ganglioneuroma, neuroblastoma, and ganglioneuroblastoma are rare tumors originating from ganglion cells. Ganglioneuromas are benign tumors arising from undifferentiated cells, Schwann cells, or ganglion-like mature cells.[1] They are slow-growing tumors usually found incidentally.[2] In the literature, the number of retroperitoneal masses reported is quite limited. We report a case of laparoscopic excision of a retroperitoneal ganglioneuroma.

CASE REPORT

A 49-y-old female was admitted to our medical center with a complaint of abdominal pain. She gave a history of hypertension and diabetes mellitus. Physical and laboratory examination did not show any pathologic findings. On abdominal ultrasonography (US), a hypoechoic solid lesion was identified at the level of the liver hilum, adjacent to the pancreas. Computerized tomography (CT) scan revealed the presence of a thin-walled mass 44 mm in diameter, localized superiorly to the middle hepatic level and adjacent to the pancreas (Figure 1). The patient's informed consent was obtained, and laparoscopic mass excision was planned.

Endotracheal anesthesia was applied to the patient lying in the supine postion. The first trocar (10 mm), used for the optic camera, was inserted superior to the umbilicus by using the open technique. After the establishment of pneumoperitoneum, intraabdominal exploration was performed. At the lower part of the left liver lobe, a circumscribed solid lesion 50 mm in diameter, wrapped all around with omentum, was identified. The remaining 3 trocar positions were chosen carefully; two 10 mm trocars were inserted in the medioclavicular line on the left and right side of the umbilicus, and a 5-mm trocar was inserted in the epigastric region (Figure 2). The mass appeared after blunt dissection of the omentum and opening of the gastrohepatic ligament. The access to the retroperitoneal area was obtained by opening the superior capsule of the pancreas. The lesion was located superoposteriorly to the pancreas, left of the first liver segment and right of the lesser curvature of the

Department of General Surgery, Umraniye Education and Research Hospital, Istanbul, Turkey (all authors).

Address correspondence to: Orhan Alimoglu, MD, Department of General Surgery, Umraniye Education and Research Hospital, Adem Yavuz Cad. K.Karabekir Mah., 34760 Istanbul, Turkey., Telephone: 90-216-632-1951, Fax: 90-216-632-7121, E-mail: orhanalimoglu@gmail.com

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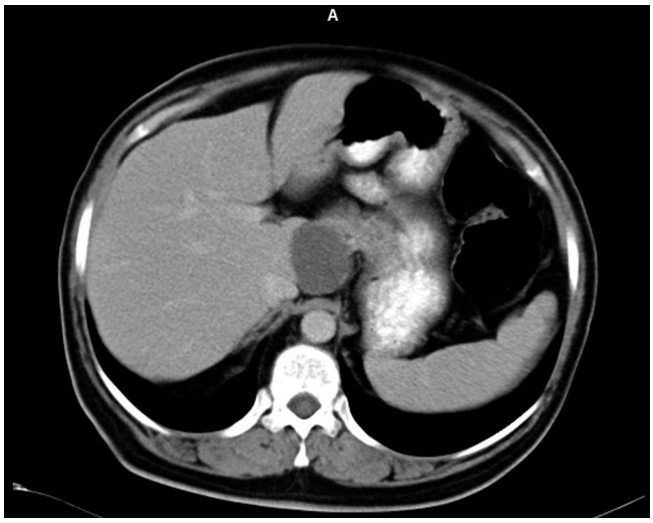

Figure 1. View of the tumor on abdominal CT.

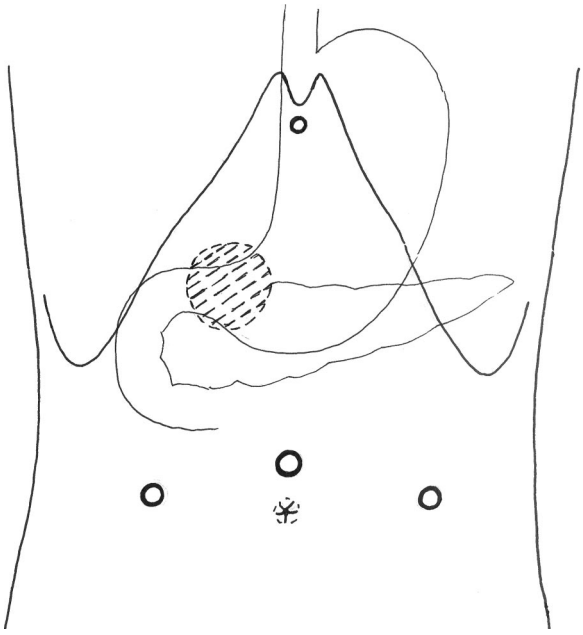

Figure 2. Port placement.

stomach. Although left gastric and hepatic arteries were in front of the mass, the splenic artery was behind it. The coeliac truncus and its branches were released from the posterior side of the lesion, and the tumor was removed en bloc. The specimen was then placed in an endobag and removed through the port site located superiorly to the umbilicus. After bleeding control, one drain was inserted in the subhepatic area. Histopathologic diagnosis was ganglioneuroma (Figure 3). On the third postoperative day, the drain was removed, and the patient was discharged from the hospital without any complications. Eight months after surgery, the patient did not have complaints of abdominal pain.

DISCUSSION

Ganglioneuromas are rare, benign neurogenic tumors that originate from the neural crest. They contain Schwann cells, ganglion cells, and fibrous tissue. According to the grade of neuroblastic differentiation, malignancy potential, type of the tumor, and development of Schwann-cell stroma, peripheral neurogenic tumors are divided into 3 subgroups: neuroblastoma, ganglioneuroblastoma, and ganglioneuroma.[1] This tumor group is defined by a broad spectrum of sympathetic neuroectodermal tumors, ranging from undifferentiated neuroblastoma to mature ganglioneuroma. Ganglioneuromas are accepted as slow-growing benign tumors that can have a very low malignancy potential. Whereas ganglioneuromas can be found everywhere along the sympathetic chain, the posterior mediastinum, retroperitoneal area, and adrenal glands are the most common locations.[3,4]

Although ganglioneuromas usually develop in childhood, they are often detected in adults because they grow slowly. Two-thirds of patients are under the age of 20 y, and ganglioneuromas are rarely observed over the age of 60 y.[5] Slow-growing tumors do not cause symptoms until they become quite large. Patients with ganglioneuroma are usually asymptomatic or admitted to the hospital with nonspecific symptoms. Symptoms occur because of compression of surrounding tissues.[6] Cough, back pain, and dyspnea could be observed inpatients with tumor located in the mediastinum, whereas palpable abdominal mass, as well as abdominal or back pain, could be observed in patients with tumor located in the retroperitoneum. Ganglioneuromas rarely produce vasoactive intestinal polypeptide, androgenic hormones, and catecholamines, such as vanil mandelic acid or homovanilic acid. In patients with hormone-producing tumors, flushing, diarrhea, and labile hypertension could be observed.[2] Ganglioneuromas are usually diagnosed incidentally during the evaluation of nonspesific abdominal pain by imaging techniques. Posterior mediastinal mass can be observed on plain radiographs. Though the gold standard imaging techniques for ganglioneuromas are CT and magnetic resonance imaging (MRI), circumscribed homogeneous and hypoechoic tumors can be detected on ultrasound examination.[7] Homogenous and circumscribed masses are found on CT. Circumscribed or spotted calcification may be observed in 20% of the patients.[5] On MRI, T1-weighted images show a low signal intensity,

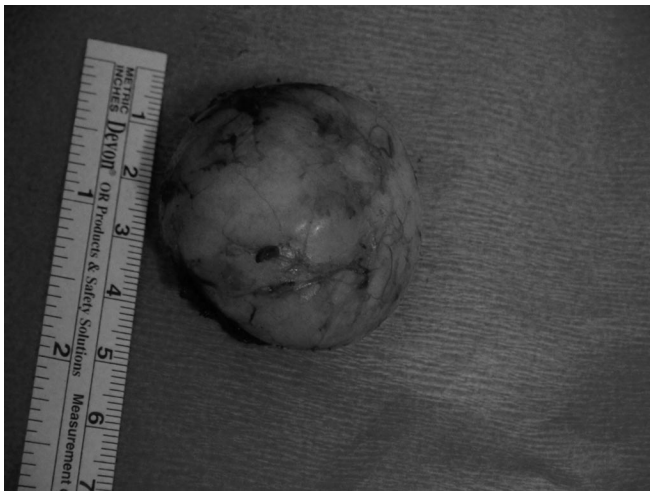

Figure 3. Macroscopic view of the specimen.

whereas T2-weighted images show a heterogeneous high-signal intensity. The combination of ganglion cells and myxoid material are the results of T2-weighted images, which are specific for ganglioneuromas.[7,8] Definitive diagnosis is made by needle aspiration or open biopsy.[6] Ganglioneuromas are oval, pseudocapsulated, cresentic, lobulated, contoured, white to yellow in color and vary in size from 5cm to 8cm in diameter. Cellular atypia, mitotic activity, and necrosis is not observed on histopathological examination.[9–11]

CONCLUSION

The management of retroperitoneal tumor is total excision. When tumor is completely excised, adjuvant therapy is not necessary. Excision of retroperitoneal tumor is performed safely and reliably with minimally invasive surgery.

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