Technical Note

Endoscope-assisted Minilaparotomy (Endoscopic Minilaparotomy) for Retroperitoneal Schwannoma: Experience with Three Cases

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We have been applying endoscope-assisted minilaparotomy (endoscopic minilaparotomy) to retroperitoneal operations with favorable outcomes. Here, endoscopic minilaparotomy through a single flank incision (4–7 cm) was performed in three cases of incidentally discovered retroperitoneal Schwannoma. Resection of the tumor was successfully completed. The postoperative course was uneventful. Wound pain was mild and full oral feeding and walk were resumed the day following operation. It is concluded that endoscopic minilaparotomy is applicable to retroperitoneal Schwannoma with excellent postoperative recovery.

Key words: laparotomy – Schwannoma – endoscopy

INTRODUCTION

Minilaparotomy through a limited incision is a modification of the standard operation using ordinary operating equipment. It can be performed easily by urologists who are not laparoscopic experts. The technique of minilaparotomy has already been introduced to staging pelvic lymphadenectomy (1–3), radical prostatectomy (4,5) and living donor nephrectomy (6). We introduced the advantages of laparoscopic surgery into minilaparotomy (endoscopic minilaparotomy) and have been applying this technique to retroperitoneal operations since 1998 (7). Here we report three cases of retroperitoneal Schwannoma, which were successfully treated by endoscopic minilaparotomy through a small single flank incision.

PATIENTS AND METHODS

Patients

The patients were all female and their profiles are listed in Table 1. The tumor was incidentally discovered by abdominal ultrasonography and located around the kidney in all of the cases. CT findings of the tumors were well-demarcated round masses showing cystic changes and heterogeneous contrast enhancement after administration of contrast medium. MRI (T1-weighted images) showed a well-circumscribed tumor with low-intensity signals, the periphery of which was enhanced by Gadrinium (Fig. 1). T2-weighted images showed a mixture of high- and low-intensity signals. These findings suggested a neural origin of the tumors.

Technique

The patient was placed in the flank position over the break in the table. The skin incision (4–7 cm) running obliquely forward was made following the line of the twelfth rib. In case 1, the distal end of the twelfth rib was removed. The external and internal oblique muscles were split to the anterior end of the wound and then the transversalis fascia was digitally split. The branches of the twelfth intercostal neurovascular bundle were spared by letting them move caudally. Gerota’s fascia was bluntly pushed medially off the psoas muscle. The ureter on the peritoneal side of the wound was identified. At this time, a 30° telescope (usually used for thoracoscopy) was introduced directly through the wound, which provided superior visualization without interfering with other instruments. Video monitors were attached to the telescope so that the field could be viewed both through the incision and on the screen. After identifying the kidney and vena cava or aorta, dissection of the tumor from the surrounding tissue was started. In addition to standard operating instruments, a knot driver for laparoscopic
surgery and long scissors, forceps and clamps were used. After the dissection, the specimens were retrieved through the incision. A drainage tube was introduced through the minilaparotomy incision. The wound was closed layer by layer as in the standard translumbar operation.

**RESULTS**

The tumors were well-circumscribed and easily dissected from surrounding tissues in all of the cases (Fig. 2). In case 2, the tumor had a direct connection with the ilioinguinal nerve, which was removed with it. As shown in Table 1, the operating time was 60–75 min. Estimated blood loss was <10 g in all of the cases. No complications occurred during the operation and
the postoperative course was uneventful. Wound pain was mild and could be managed by several doses of diclofenac sodium. All of the patients resumed full diet and walk on the first postoperative day. The hospital stay after the operations was 7–13 days (Table 2). Microscopically, the tumors were composed of interlacing bundles or whorls of elongated spindle cells, the nuclei of which align themselves into palisades (Schwannoma, Antoni A) (Fig. 1).

**DISCUSSION**

We have shown that retroperitoneal Schwannoma can be resected safely through limited incision by endoscopic minilaparotomy. The optimum magnification afforded by the 30° endoscope facilitates precise dissection of the target organ and preservation of the surrounding tissues. The monitor screens provide information on the process of the operation to both paramedical staff and operators, which may lead to efficient procedures and shorter operating times. Insertion of the telescope through the incision eliminates the need for additional skin incision for the telescope port. The view was excellent and there is no interference with other operating instruments.

In contrast to laparoscopic surgery, which requires sufficient experience and skill, only a short learning period is needed for minilaparotomy. Since minilaparotomy is a simple modification of the standard open surgery, the anatomical frame of reference, landmarks and operating technique are almost the same for both operations (8). Minilaparotomy, therefore, is useful for urologists who are not familiar with laparoscopy. This advantage may prove particularly important in areas lacking the number of cases to overcome the laparoscopic learning curve.

From the case reports published in the last 20 years, we gathered available data on the results of operations carried out for perirenal retroperitoneal Schwannomas 7 cm or smaller (10–18). The bleeding during the operation in the endoscopic minilaparotomy group (this series) was less than that in the open surgery cases and matches that in laparoscopic surgery cases. The operating time in our cases was shorter than that in laparoscopic or open surgery groups. The postoperative hospital stay in endoscopic minilaparotomy cases compares favorably with that in the laparoscopic surgery group. All of these results suggest that endoscopic minilaparotomy is a safe, efficient and minimally invasive operation for benign retroperitoneal Schwannoma.

In conclusion, endoscopic minilaparotomy is applicable to benign retroperitoneal Schwannoma with excellent postoperative recovery. We believe that endoscopic minilaparotomy has distinct advantages in managing benign retroperitoneal tumors such as Schwannoma.

**References**