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Anterior Transabdominal Laparoscopic Adrenalectomy, without Ligatures, for a Symptomatic Right Adrenal Myelolipoma with Intratumorally Hemorrhage

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Rezumat

Suprarenalectomia transabdominală anterioară laparoscopică fără ligaturi pentru mielolipom adrenalian drept simptomatic cu hemoragie intratumorală

Incidența mielolipoamelor în cadrul tumorilor primare de glandă suprarenală este de 3-7% şi de cele mai multe ori acestea sunt incidentaloame. În majoritatea situațiilor sunt asimptomatice, rareori simptomatice (dureri, discomfort abdominal, hematurie sau semne de hemoragie internă). Histologic benigne, această varietate de tumori necesită doar excizie locală în formele simptomatice. Dimensiunile lor sunt în general până la 4-5 cm, de aceea abordul laparoscopic pare cel mai indicat. Se prezintă cazul unei paciente în vârstă de 65 de ani, operată electiv pentru o formațiune tumorală suprarenaliană dreaptă la care s-a practicat o adrenalectomie dreaptă laparoscopică prin abord transabdominal anterior. Nu s-au utilizat ligaturi, clipuri sau suturi, intervenția realizându-se cu pensa Ligasure Maryland şi platforma Force Triad (Covidien Medtronic-USA). Evoluția postoperatorie a fost favorabilă, examenul histopatologic evidențiind un mielolipom adrenal cu hemoragie intratumorală.

Cuvinte cheie: mielolipom suprarenalian, suprarenalectomie transabdominală anterioară

Abstract

Myelolipomas represent 3-7% of primary tumors of the adrenal gland. Most often they are incidental findings. In most cases they are asymptomatic, rarely presenting symptoms (pain, abdominal discomfort, hematuria or signs of internal hemorrhage). Histologically benign, this variety of tumor requires only local excision, in symptomatic forms. Their dimensions are generally up to

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4-5 cm, so laparoscopic approach seems the most appropriate. The aim of our study is to outline the laparoscopic approach in this pathology. We present the case of a 65-year-old female patient, electively operated for a right adrenal tumor. A laparoscopic right adrenalectomy was performed using an anterior transabdominal approach. No ligatures, clips or sutures were used. The intervention was accomplished with the Ligasure Maryland forceps and the Force Triad platform (Covidien Medtronic-USA). Postoperative evolution was favorable and the pathological examination highlighted an adrenal myelolipoma with intratumoral hemorrhage.

Key words: adrenal myelolipoma, anterior transabdominal adrenalectomy

Introduction

Myelolipomas represent 3-7% of primary tumors of the adrenal gland and in most cases they are incidentally found (ultrasound, CT scan and MRI) (1,2,3,4) or during autopsies (0.08 – 0.4%) (5,6). The extra-adrenal localization of these histologically benign tumors may be presacral (up to 50% of the extra-adrenal localization) (2), splenic, gastric, pulmonary, hepatic, retroperitoneal, testicular (1,7, 8). Most of the time they are asymptomatic, unilateral (more frequent on the right side), but they can also be bilateral (9,10). Their size is, in general, under 4 cm, but they can also reach greater size (the greatest myelolipoma described in the literature was of 31x24.5x11.5 cm and weighted 6 kg) (5,6,10,11). Symptomatic forms usually present with unregulated pain in the epigastrium and flanks (right or left depending of the localization of the tumor), abdominal discomfort, rarely hematuria or signs of hemorrhagic shock caused by spontaneous rupture of the tumor, with retroperitoneal bleeding (2,3,5,7,9,12, 13,14).

Case report

We report the case of a female patient, aged 65 years, from an urban area, admitted by appointment into the Ist Surgery Department of the Emergency County Hospital of Tîrgu Mureş. On admission, the patient complained of abdominal pain in the right upper quadrant and flank, accompanied by nausea and unorganized vomiting. The symptomatology began insidiously, three weeks before admission.

From the patient's personal medical history we withhold a type II diabetes mellitus treated with oral antidiabetics (Siofor, Diaprel), hypercholesterolemia (treated with Medostatin) and bilateral chronic venous insufficiency of the lower limbs.

Endocrinological and gynecological preoperative evaluations revealed no pathological data.

Hematological and biochemical laboratory examinations were in normal range.

The abdominal ultrasound described the presence, at the upper pole of the right kidney, in the projection area of the adrenal gland, of a circumscribed nodular formation, hypoechogenic, in homogeneous, with echogenic areas included, avascular, measuring 41/35 mm. (*Fig. 1*)

Computed tomography confirmed the presence of a mass developed in the right adrenal gland with inhomogeneous appearance, upon native examination and after dye administration, with included calcifications, having the maximum dimensions of 46/41 mm. (*Figs. 2 and 3*)

Under general anesthesia, an anterior transabdominal approach using four trocars was performed.

During the procedure we used the VALLEYLAB high energy platform and the LIGASURE MARYLAND forceps (Medtronic Covidien USA). The advantages of this forceps are multiple: it can be used for dissection; the curved tip allows performing small but safe steps, with a significant decrease in intraoperative blood loss and an efficient hemostasis. In addition, because of the curved jaws, finer than the ATLAS forceps, it can be used for fine dissections.

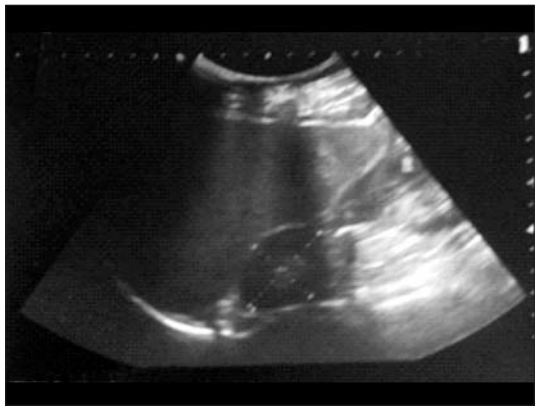

Figure 1. Preoperative ultrasound image

Figure 2. Right adrenal tumor formation

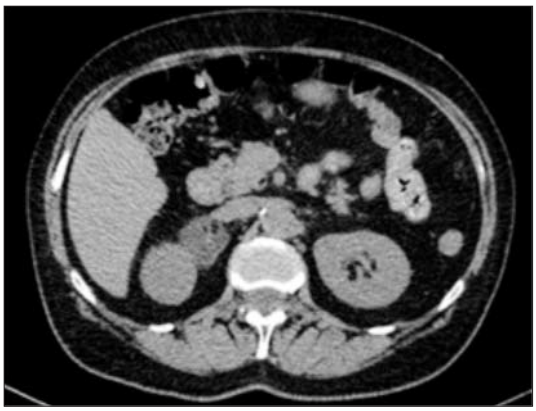

Figure 3. Right adrenal tumor formation

Figure 4. Adhesions around the gallbladder

Figure 5. Adhesions sectioning

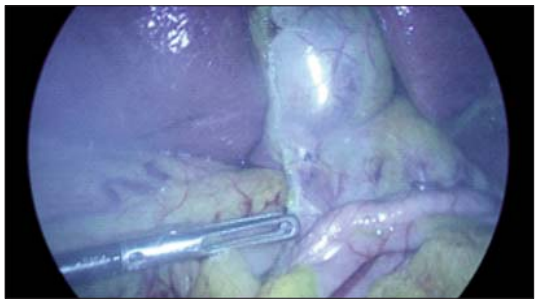

Figure 6. Hepatocolic ligament incision

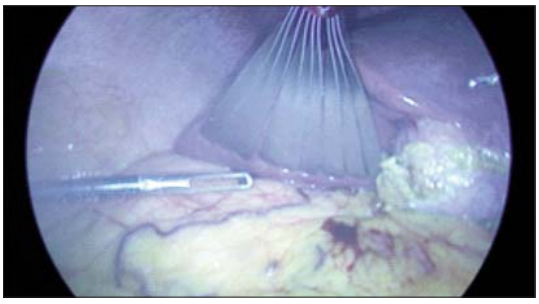

Figure 7. Cranial mobilization of the liver

Furthermore, because is very easy to handle, it allows vascular primary approach and the preparation of tumors.

After the installation of the pneumoperitoneum and the insertion of trocars, during inspection we found a pericholecystic adherence syndrome we had to resolve by using the Maryland forceps and the Hook instrument (*Fig. 4*).

Following the sectioning of the hepatocolic ligament and the right triangular ligament a cranial mobilization of the liver is performed using a fan retractor (via the subxiphoid site) (*Fig. 6*).

After performing the Kocher maneuver the right kidney is exposed. Following the incision of the posterior peritoneum at the level of the superior renal pole a tumor measuring ~ 4 x 5 cm in diameter is found within the right adrenal gland (*Figs. 8 and 9*).

An inferior approach is chosen with the sectioning of the inferior suprarenal artery and vein followed by a medial preparation and sectioning of the superior suprarenal arteries with the LigaSure Maryland device.

These steps are followed by lateral preparations and cranial push of the adrenal gland. The adrena-

Figure 8. Incision of the posterior peritoneum

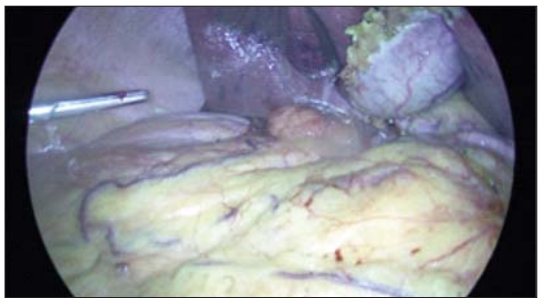

Figure 9. Exposure of the adrenal gland

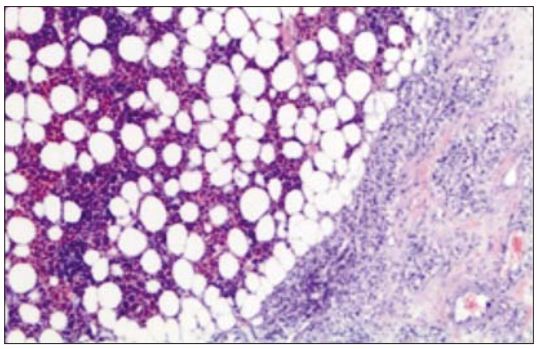

Figure 10. Myelolipoma with large areas of hyalinization and intratumoral hemorrhage

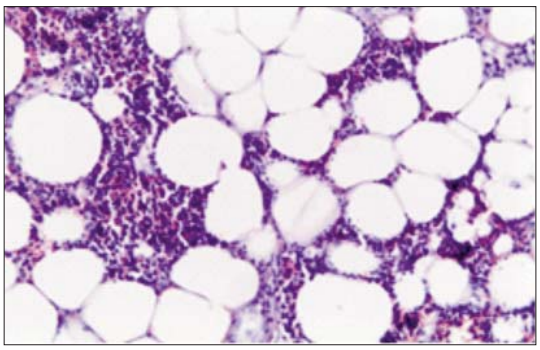

Figure 11. Mature adipose tissue with hematopoietic elements

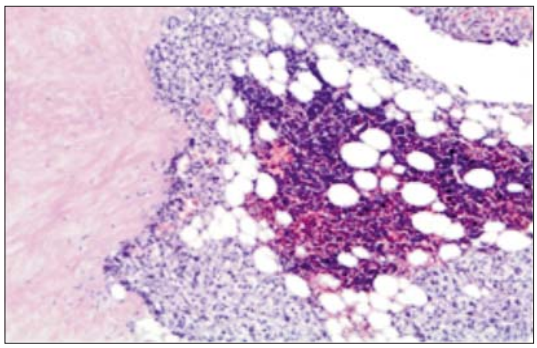

Figure 12. Residual cortical adrenal tissue with extended areas of hyalinization and fibrotic tissue

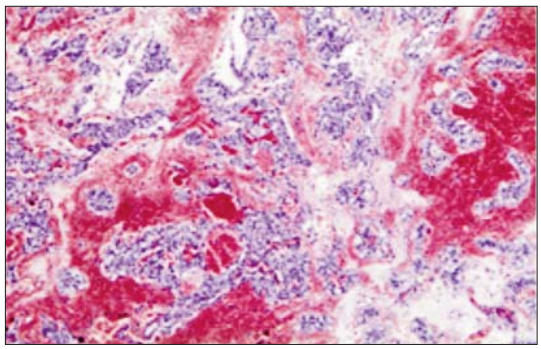

Figure 13. Intratumoral hemorrhage

lectomy is completed and the gland is removed using the epigastric site. The arterial time is performed simultaneously with the venous one without individualization of the venous and arterial blood supply with two applications of the forceps 1-1,5 mm apart. One silicon contact drain is used via a counter incision that was removed on the 3rd post-operative day. The operative time was 120 minutes. The patient was discharged on the 4th postoperative day with normal bowel movement, normal diuresis and in a good general condition.

The patient had follow-up ultrasonography at 7, 14 and 28 days that resulted in no remarkable findings. The histopathological exam shows a myelolipoma with large areas of hyalinization and intratumorally hemorrhage (*Fig. 10*).

Upon further examination adrenal cortical tissue is found showing extended areas of hyalinization, small islands of mature adipose tissue and various hematopoietic elements (*Figs. 11-13*).

Discussions

Adrenal myelolipomas do not become malignant

and surgery is only required in symptomatic forms. (5,6,9,15,16)

According to minimally invasive guidelines approved by the Board of Governors of Sage in 2013 (4,17), the approach of such a pathology can be lateral transabdominal (LTA), posterior retroperitoneoscopic (PRA), anterior transabdominal (ATA), robotic (RA), single port (SPA).

The technique largely depends on the surgeon's experience with general surgeons choosing an ATA approach as familiarity with the working site is increased. Other factors taken into account are tumor size, localization, patient characteristics, imaging characteristics, proper diagnosis (exclusion of a pheochromocytoma, Conn disease or malignancy). Last but not least, some advanced laparoscopic technical equipment is required for this type of surgery (energy platform, sealing sectioning devices. (4,18,19)

The use of the Maryland device allows for a safe and easy intervention with simpler exposure and sectioning of vascular elements. Applying the device two times extends the coagulation possibilities to larger vessels (7-10 mm in diameter), both venous and arterial.

Preoperative diagnosis of myelolipomas is difficult even with high quality imaging. This is most likely due to the decreased quantity of adipose tissue seen on preoperative CT scans or MRI.

Conclusion

Laparoscopic adrenalectomy is the surgery of choice due to diminished postoperative pain, low admission time, faster social reintegration and, last but not least, superior cosmetic outcome. A transabdominal approach is generally preferred, being similar to other laparoscopic procedures.

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