



# Laparoscopic splenectomy for splenic hamartoma in elderly patient

## Case report and review of the literature

Ann. Ital. Chir.  
e-publish 25 October 2012  
pii: S2239253X12020208  
[www.annitalchir.com](http://www.annitalchir.com)

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### Laparoscopic splenectomy for splenic hamartoma in elderly patient. Case report and review of the literature

**AIM:** We proved the feasibility and the safety of the laparoscopic splenectomy for splenic hamartoma in elderly patients.

**MATERIAL AND METHODS:** We present the first case of laparoscopic splenectomy for splenic hamartoma in elderly patients and we reviewed the English literature regarding the laparoscopic approach.

**RESULTS:** A 74-year-old man with a 6-month history of left upper quadrant abdominal and back pain was referred to our hospital for the evaluation of a splenic mass detected by ultrasonography. Computerized tomography scan (CT) revealed the presence of a solid tumor in the upper pole of the spleen (size 5.3 x 4.5 cm). The diagnosis of a malignant tumor was not excluded completely and because of increasing severe left upper quadrant pain, after three days the patient underwent laparoscopic splenectomy and the final pathological diagnosis was splenic hamartoma. The patient's postoperative course was uneventful and the patient was discharged by the sixth postoperative day.

**CONCLUSIONS:** Splenectomy is still necessary for diagnostic and therapeutic purposes and mini-invasive surgical technique today represents the standard procedure for the management of any space-occupying lesions of the spleen also in elderly patients.

**KEY WORDS:** Elderly patients, Hamartoma, Laparoscopic splenectomy, Management

## Introduction

Solid tumors of the spleen are relatively rare. Among them the most important malignant tumor of the spleen is lymphoma<sup>1</sup>.

Other less common malignancies include primary splenic angiosarcomas, plasmacytomas, primary malignant fibrous histiocytomas and metastases from non-gastrointestinal malignancies (lung, breast, uterus, ovary and melanoma)<sup>2-4</sup>.

On the other hand, vascular tumors are the most important benign, non-hematologic splenic lesions. Splenic hamartoma is an extremely rare vascular tumor with an incidence of 3 in 200,000 splenectomies and represents an aberrant mixture of normal splenic elements<sup>5</sup>.

Although splenic hamartomas are benign and usually asymptomatic it is very difficult to obtain the exact diagnosis of nature, so many patients finally undergo splenectomy<sup>6,7</sup>.

We present the first case of laparoscopic splenectomy for splenic hamartoma in elderly patient.

Pervenuto in Redazione Giugno 2012. Accettato per la pubblicazione Settembre 2012

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### Case report

A 74-year-old man with a 6-month history of left upper quadrant abdominal and back pain was referred to our hospital for the evaluation of a splenic mass detected incidentally by ultrasonography.

Ultrasonography (Us) revealed a solid, hyperechoic mass in the upper pole of the spleen with a maximal diameter of 6cm, with internal multiple flow signals on Power Color Doppler.

Physical examination did not reveal any abdominal mass, splenomegaly or hepatomegaly.

Computerized tomography scan (CT) revealed increased global spleen size, with a focal avascular lesion in the upper polar region, both in basal conditions and after contrast enhancement (Figs. 1, 2, 3, 4).

The diagnosis of a malignant tumor was not excluded completely and because of increasing severe left upper quadrant pain, after three days the patient underwent laparoscopic splenectomy.

The patient was placed in right lateral decubitus, flexed at the waist, a cushion was placed under the contra-lateral lumbar fossa which opened the operative field, thereby facilitating trocar placement.



Fig. 1



Fig. 3



Fig. 1



Fig. 4

Trocars were placed along a linear curve below the left costal margin, the optical trocar (10 mm trocar) was inserted in the left hypochondrium, halfway between the umbilicus and the left costal margin, the 2nd 12mm operative trocar was inserted into the left lumbar fossa, on the posterior axillary line, far enough from the anterior superior iliac spine. Another 3rd 10 mm trocar, was placed under the left costal margin, 10 cm from the xiphoid process, for insertion of atraumatic graspers, used to manipulate the spleen. The first step was the exposure of the anterior side of the splenic hilum (Fig. 5). The gastrosplenic ligament was dissected in an ascending direction by ultrasonic dissector, sectioning the short gastroepiploic vessels and the inferior and superior gastrosplenic vessels after cauterization. The next step was to dissect the pancreaticosplenic ligament extending from the tail of the pancreas, at this point the splenic artery and vein situated above the supe-

rior margin of the pancreas are generally easy to identify and dissect. Mobilization continued by dividing the posterior and lateral attachments of the spleen. The splenorenal ligament was dissected and this led the spleen to be displaced medially and the tail of the pancreas to be displaced anteriorly.

At this point, the hilar vessels, extending from the tail of the pancreas, were the only anatomical structures keeping the spleen in place, so the freed hilum was divided from its base upwards using an endostapler (Endo GIA vascular linear) which should be positioned beyond the tail of the pancreas (Figs. 6, 7). The spleen was captured into the endocath retrieval bag and removed from a transverse lower abdominal, suprapubic incision, 7 cm in length. The total operation time and estimated intraoperative blood loss were 150 min and 130 ml respectively. The patient's postoperative course was uneventful and he was discharged on the seventh postoperative day.



Fig. 5

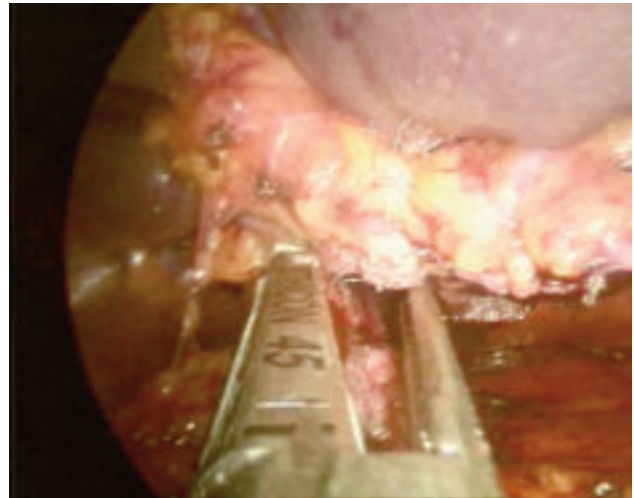


Fig. 7

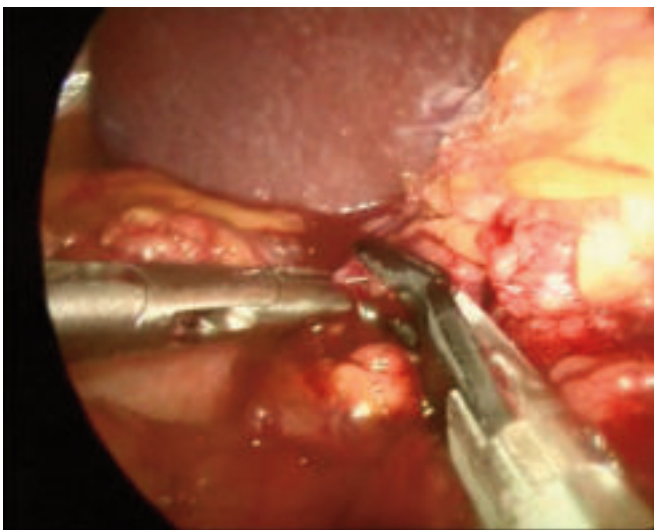


Fig. 6

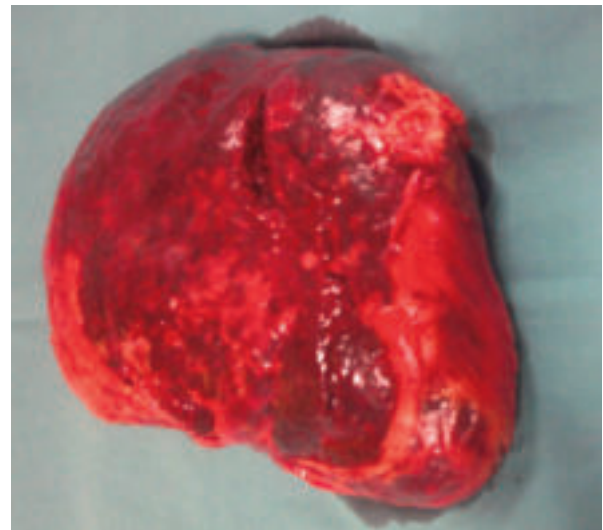


Fig. 8

The resected spleen weighed 200 g and measured 20 x 8 cm, the mass was embedded inside the upper pole of the spleen, gross examination of the cut surface showed solid, well-circumscribed lesion measuring 6 x 5 cm (Fig. 8). The pathological diagnosis was splenic hamartoma.

## Discussion

Hamartoma (or Splenoma) of the spleen is a rare benign tumor which consists of aberrant splenic tissue, it was first described in 1861 by Rokitansky and since then about 140 cases have been reported <sup>8</sup>.

In English literature there are only four cases of laparoscopic splenectomy for splenic hamartoma (Table I). We present the first case of laparoscopic splenectomy for splenic hamartoma in elderly patient.

The pathogenesis of hamartoma is controversial and includes congenital malformation of the splenic red pulp, neoplasm or a reactive lesion to prior trauma <sup>8,9</sup>.

Splenic hamartoma is usually a solid, well circumscribed, non capsulated nodule that compresses the splenic parenchyma without infiltration.

Although splenic hamartoma is usually asymptomatic, it may rarely cause symptoms due to splenomegaly (a feeling of weight in the left upper quadrant, incidental splenic rupture) or due to hypersplenism (anemia, thrombocytopenia) <sup>10</sup>.

The diagnosis is usually incidentally at all ages, during Us or CT scans carried out for other problems it is very rare in older patients <sup>9-11</sup>.

Recent advances in imaging techniques have improved the ability to detect asymptomatic splenic masses but imaging findings of hamartomas are not specific to obtain a correct diagnosis of nature.

Splenic hamartoma should be considered as a differential diagnosis for all splenic masses and frequently it is important to distinguish splenic hamartoma from splenic hemangioma, the most common benign splenic tumor <sup>5</sup>.

On Us, hamartomas are usually solid, homogenous lesions with various echogenic patterns, generally hypoechoic but occasionally hyperechoic with cystic degeneration and calcifications due to ischemia or hemorrhage <sup>10</sup>.

Color Doppler sonography demonstrates intense vascularization with multiple radial blood-flow signals inside the mass <sup>12</sup>.

Whereas capillary and cavernous hemangioma appears respectively as hyperechoic and hypoechoic showing only a few flow signals on color Doppler sonography <sup>13</sup>.

On CT scan hamartomas are isodense to normal splenic parenchyma or hypodense masses and show an intense and diffuse heterogeneous enhancement in the arterial phase <sup>14</sup>.

On MRI hamartomas are isointense to splenic parenchyma on T1 weighted images, hyperintense on T2 weight-

TABLE I

Authors	N° of patients	Grader / Age	Tumor size (cm)	Preoperative diagnosis	Surgical technique	Number of ports	Devices used	Operation time (min)
Yoshizumi T <sup>17</sup> Surgical Endoscopy 1997.	1	Male 45 yr	6.0 x 3.8	Benign tumor	Tot LSPL	4	Endo GIA	305
Tatekawa Y. <sup>18</sup> Pediater Surg Int 2007.	1	Female 12 yr	5	Hamartoma	Tot LSPL	4	Endo GIA	ND
Makrin V. <sup>6</sup> Surgical Endoscopy 2008.	1	ND	ND	Hamartoma	Tot LSPL	4	Endo GIA	ND
Namikawa T. <sup>5</sup> World Journal of Gastrointestinal Surgery 2009.	1	Male 37 yr	2.5 x 2.4	Benign tumor	HALS	3	ND	100
Our case 2011.	1	Male 74 yr	5.3 x 4.5	Benign	Tot LSPL tumor	3	Ultracision Endo GIA	150

Tot LSPL = Total laparoscopic splenectomy; ND = Not described; HALS = Hand-Assisted Laparoscopic Surgery

ed images and after gadolinium administration they demonstrate heterogeneous enhancement<sup>15</sup>.

In the case of splenic hemangiomas, dynamic enhancement imaging, using both CT and MRI demonstrates a progressive centripetal pattern of enhancement with prolonged uniform enhancement on delayed images<sup>15</sup>.

In all cases the diagnosis finally must be confirmed by pathological examination.

Histologically splenic hamartoma can be classified into 3 types: type I develops from the white pulp and consists of abnormal lymphoid tissue, type II develops from red pulp and consists of a complex of abnormal sinuses, type III is the most common type and is a combination of type I and II containing elements of both types<sup>9</sup>.

The endothelial cells of hamartoma are CD8-positive and CD34-negative in contrast to the CD8-negative and CD34-positive endothelial cells of splenic hemangiomas<sup>16-19</sup>.

Although there have been some studies about the efficacy and safety of fine-needle biopsy of the spleen, the possibility of bleeding or tumor dissemination makes this technique problematic<sup>9</sup>.

Therefore, splenectomy is still necessary for diagnostic and therapeutic purposes. We performed a total laparoscopic splenectomy because the nature of the splenic mass was uncertain. Neither partial splenectomy, nor spleen autotransplantation therefore were indicated<sup>20</sup>.

Laparoscopic splenectomy today is the standard surgical procedure for the management of any space-occupying lesions of the spleen (benign and malignant diseases)<sup>5,6</sup>. Commonly the procedure implies the access of 3 or 4 trocars using a 30 grade angled 10 mm telescope using the Hasson Technique<sup>5,6,16,17,21</sup>.

However, when the tumor is associated with a massive splenomegaly, a total laparoscopic approach may be difficult and HALS (hand-assisted laparoscopic surgery) may be considered as a primary approach or an alternative to conversion<sup>5</sup>.

Hand-assisted laparoscopic surgery facilitates the surgical procedure by allowing identification of dissection planes or the hand function as a retractor or to control bleeding by compression on the splenic vascular pedicle<sup>5</sup>.

Older age non represents a risk factor for laparoscopic splenectomy, minimally invasive excision compared with open excision offers the following advantages: earlier restoration of bowel function, earlier resumption of solid diet, less postoperative pain, lower analgesic consumption, shorter length of stay. These short-term benefits are more evident in the elderly patients than in the general population.

For elderly patients, a long hospital stay may be associated with more complication rate, such as hospital-acquired infection and loss of active daily life, therefore for such patients a short hospital stay and rapid recovery are important issues.

It would seem natural that laparoscopic splenectomy, with its improved short-term and comparable long-term outcomes, when compared to the open method should be the ideal surgical approach.

## Conclusions

Splenic hamartoma is an extremely rare vascular tumor of the spleen.

Splenectomy is still necessary for diagnostic and therapeutic purposes and mini-invasive surgical technique today represents the standard procedure for the management of any space-occupying lesions of the spleen also in elderly patients.

## Riassunto

Gli autori presentano un raro caso di Hamartoma splenico scoperto incidentalmente in un anziano di 74 anni e trattato con successo per via laparoscopica.

Nonostante i recenti progressi delle tecniche di imaging, nel rilevare masse spleniche asintomatiche, a tutt'oggi non esistono nell'ambito della semeiotica radiologica specifici segni che possano fornire una corretta diagnosi di natura.

Nonostante alcuni studi abbiano valutato l'efficacia e la sicurezza della biopsia con ago sottile della milza, la possibilità di sanguinamento o di diffusione del tumore rende questa tecnica problematica. La splenectomia pertanto risulta ancora necessaria per scopi diagnostici e terapeutici nel caso in cui si sospetti una sottostante neoplasia splenica.

La splenectomia laparoscopica oggi è la procedura chirurgica standard per la gestione di qualsiasi lesione occupante spazio della milza (tumori benigni e maligni).

Gli autori eseguono inoltre una accurata revisione della letteratura sulle note di tecnica chirurgica: total laparoscopic splenectomy vs hand-assisted laparoscopic surgery, posizionamento dei trocar, tipo di sutura usata per l'ilo splenico.

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