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MS JESSICA M RYAN (Orcid ID : 0000-0001-6161-9630)

Article type : Video Correspondence

Title
Haematological Splenectomy in University Hospital Waterford: A 10-year Audit and Technical Video

Authors
Ms. Jessica M Ryan HDip MRCSI
Ms. Tara Connelly PhD FRCSI
Dr. Alex Bryan MB
Mr. Peter McCullough MD FRCSI (Gen-Surg)
Professor Peter Neary MD FRCS(Colorectal)
Professor Fiachra Cooke MD FRCSI (Gen-Surg)

a) Department of Academic surgery, University Hospital Waterford, Dunmore Road, Waterford
b) University College Cork School of Medicine, College Road, Cork
c) Royal College of Surgeons in Ireland, 123 St. Stephen’s Green, Dublin 2, Dublin

Corresponding author
Ms. Jessica M Ryan HDip MRCSI
Department of Academic surgery, University Hospital Waterford, Dunmore Road, Waterford

Email: jessicaryan@rcsi.com

Tel: (051) 848 000

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To whom it may concern,

First line treatment for haematological and immune disorders (e.g. auto-immune haemolytic anaemia and idiopathic thrombocytopenic purpura) is medical therapy in the form of immunosuppression. Should the patient fail to improve with first line therapy, splenectomy offers a second line treatment in some patients. University Hospital Waterford (UHW) is the regional haematological unit and we have offered a consult-based service for splenectomy since June 2010. A retrospective analysis of all haematological splenectomies performed in UHW was carried out. The attached video (Video S1) also describes a selection of laparoscopic splenectomies carried out in the department.

A total of 18 splenectomies were carried out for haematological disorders during this time period, all of which were performed laparoscopically. The median spleen weight was 270g (91-1895g) and the median preoperative platelet count was 126x10^9/L (3-376x10^9/L). The mean length of stay was 19+/-22 days and there were no perioperative mortalities.

Regarding the setup, patients receive a general anaesthetic and a nasogastric tube. They are positioned in the Lloyd-Davis position with a wedge under the left shoulder. We use a 30-degree 10mm camera, a Harmonic scalpel, and a laparoscopic stapler with a vascular load. Pneumoperitoneum is obtained via a 12mm supra-umbilical port and three further ports are placed under direct vision. Further technical details are described in the attached video.

Spleen video narration

- University Hospital Waterford is the regional haematological unit and we have offered a consult-based service for splenectomy since 2010
- In this time we have performed 18 laparoscopic splenectomies for haematological disorders
- The largest spleen weighed 2kg and the lowest preoperative platelet count was three

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Here are some examples of the commonest indications for haematological splenectomy. ITP was by far the most common indication in our cohort.

Patients receive a general anaesthetic and a nasogastric tube.

They are positioned in the Lloyd-Davis position with a wedge under the left shoulder and are left side up.

We use a 30 degree 10mm camera, a harmonic scalpel, and an echelon laparoscopic stapler with a vascular load.

Hasson pneumoperitoneum is obtained via a 12mm supraumbilical port and a 5mm port and 12mm port are placed under direct vision.

A further 15mm port is placed out laterally for the endobag and retractor.

All patients get preoperative cross-sectional imaging to outline the hilar anatomy and to define where the splenic flexure sits in relation to the spleen.

Video 1

Each case begins with division of the most accessible peri-splenic attachments.

For the first case, the spleen is retracted anteriorly with a paddle retractor, followed by division of some medial omental adhesions.

The spleen is lifted from below, so that the posterior and lateral attachments can be divided with the Harmonic scalpel.

The pedicle is sequentially skeletalised, and care is taken not to cause any splenic vessel bleeding with the Harmonic scalpel.

The goal is to isolate the pedicle as much as possible to make it accessible to the stapler.

The laparoscopic stapler is used to begin dividing across the hilum.

Here you can see large, branched, hilar vessels becoming visible. These are further dissected out with the Harmonic scalpel, taking care not to cause bleeding.

These large vessels can also be seen on the preop CT image which is overlain here.

The stapler is then used to divide the remainder of splenic hilum, until the spleen is fully resected.
Video 2

- This next case highlights some different anatomy in a smaller spleen
- The hilum is again divided with the vascular stapler
- Once division of the hilum is complete, there are still some superior and lateral attachments. These are easily divided with the Harmonic scalpel
- Here you can see the staple line, and as with all cases, the spleen is then extracted in an endobag

Video 3

- Here we have our third, and final case
- Similar to the first case, we begin by dividing the medial omental attachments
- Instead of a paddle, a fan retractor was used
- Again the hilum is gradually skeletalised to allow insertion of the vascular stapler
- After division of the remaining attachments, the spleen is extracted in an endobag

Key points

- Our patients all receive preoperative immunisation
- Ensure to look for, and remove, an accessory spleen
- And do not give platelets until the vessels are clamped. We generally accept platelets over 30, but we are guided by haematology and anaesthetic colleagues
- As always, positioning and retraction are key
- And start with the most accessible attachments, gradually exposing the hilum to facilitate use of the vascular stapler, and avoid causing bleeding with the harmonic scalpel