Splenic rupture and infectious mononucleosis - splenectomy, splenorrhaphy or non operative management?

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Spontaneous rupture of a pathological spleen is an uncommon surgical emergency. This complication can occur in a wide variety of conditions[1] but the association with infectious mononucleosis is well recognized[2]. Management options have broadened with the introduction of splenorrhaphy and non operative treatment, now accepted as alternatives to splenectomy in traumatic rupture. These conservative approaches are attractive in that the complications from overwhelming post splenectomy infection may be avoided[3]. As a consequence, reports have now appeared in the literature documenting successful outcomes using such management in glandular fever[4].

Four patients with spontaneous rupture of the spleen are presented, contrasting splenectomy with conservative treatments.

Case reports

Case 1

A 29-year-old man presenting with 'peritonitis' and haemoglobin of 10.2 g/dl was subjected to immediate laparotomy where the unexpected diagnosis of splenic rupture and haemoperitoneum was made. Splenectomy and lymph node biopsy of prominent gastro-splenic nodes was performed from which the histological diagnosis of infectious mononucleosis was made. Recovery was uneventful and he remained well 18 months later.

Case 2

A 23-year-old woman, thought to have the lazy leucocyte syndrome presented with abdominal pain and syncope. She had recently recovered from sinusitis and a sore throat. Hypotension, occipital and submandibular lymphadenopathy, haemoglobin of 9.6 g/dl and tenderness in the left upper quadrant of the abdomen suggested infectious mononucleosis and was confirmed using the Monospot test. Laparotomy confirmed splenic capsular rupture with haemoperitoneum and a splenectomy was performed. She was discharged 10 days after surgery and was well 16 months later.

Case 3

This 31-year-old man who had infectious mononucleosis diagnosed 2 weeks previously presented with abdominal pain. Hypotension, generalized abdominal tenderness and free egress of peritoneal blood during lavage prompted laparotomy. Splenic rupture was confirmed and an omental wrap and suture repair of the spleen attempted. This was abandoned because the spleen disintegrated during the repair. Splenectomy was performed with uneventful recovery, he was well 13 months later.

Case 4

This 22-year-old man presented with lethargy, tachycardia and a tender spleen. A Monospot test was positive and peritoneal lavage excluded haemoperitoneum. Conservative management was instituted with intravenous volume replacement and gastric decompression. Initial improvement was followed by gradual deterioration with worsening abdominal pain, ileus, a left sided pleural effusion lung consolidation and swinging pyrexia. A laparotomy revealed an intact spleen with a large subcapsular haematoma. Splenectomy was followed by rapid recovery and he was well 12 months later.

Discussion

Splenic rupture associated with infectious mononucleosis was first described by King in 1941[5]. It is an uncommon complication, in England and Wales about 100 spleens annually can be expected to rupture as a result of the disease[6]. Young adults are usually affected presenting 10-21 days after the onset of viral symptoms[2] but splenic rupture can occur when there are no symptoms from the disease[7]. Diagnosis may be difficult, peritoneal lavage can be used but blood loss may be occult, contained beneath an intact splenic capsule. Computerized tomography and ultrasound are more specific, where a cresenteric double edge of capsule and haematoma on the diaphragmatic surface of the spleen can be seen[8]. Progression from this to complete disintegration and haemoperitoneum occurs and accounts for occasional fatalities[9].

Selective non operative management of splenic injuries in children and adolescents is well established[3]. This approach avoids a laparotomy and the specific complications that can occur in asplenic patients. Various operative methods which include splenic repair and partial splenectomy can also be utilized to preserve splenic function[10]. The safety of such treatments have already been questioned in traumatic rupture[11] but are now being adopted in glandular fever[12-14]. Clearly, conservative management in infectious mononucleosis must receive close scrutiny especially as this is the most common cause of death[9].

The pathogenesis of splenic rupture in infectious mononucleosis whereby splenic microvascular damage and ischaemia occurring as a consequence of a strong immune response to viral antigens[15] is clearly different from traumatic rupture of normal spleens. In addition whether a preserved diseased spleen retains function is not known and suggests that the management principles of traumatic splenic rupture cannot be easily adopted in infectious mononucleosis.

Active conservative treatment of splenic rupture in glandular fever may occasionally be indicated. The patients in this series all presented with severe hypovolaemia and required significant amounts of blood products to enable satisfactory resuscitation. All would have failed criteria advised to indicate such

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treatment in traumatic rupture[16] and suggest these patients present in poor clinical condition. Splenorrhaphy may have a role and should be performed by surgeons with knowledge of the technique, the inherent fragility of the parenchyma of diseased spleens however will make this approach risky. These factors combined with the uncertainty of splenic function after preservation confirms the advice of Rutkow[17] that splenectomy remains the treatment of choice for splenic rupture in infectious mononucleosis.

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Forthcoming events

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Neurofibromatosis - From Phenotype to Genotype
1-2 October 1992, St John's College, Oxford
Further details from: Colonel John Blackwell CBE, General Secretary, The Neurofibromatosis Association, 120 London Road, Kingston Upon Thames KT2 6QJ (Tel/Fax: 081 547 1636)

British Association of Oral and Maxillofacial Surgeons: Autumn Meeting
2-3 October 1992, Royal College of Surgeons of England
Further details from: Mr John Lowry, Honorary Secretary, British Association of Oral & Maxillofacial Surgeons, 35/43 Lincoln's Inn Fields, London WC2A 3PN (Tel: 071 405 8074; Fax: 071 430 9997)

2nd International Psychiatry Convention: Riviera Dei Fiori
5-8 October 1992, Bordighera
Further details from: Dr G Spinetti, Ospedale Civile, GF Novaro Costarainera, Imperia 18017, Italy (Tel: 0183 91524)

MRCP Part II Course
5-9 October 1992, Royal Free Hospital, London
Further details from: Dr D Geraint James, Royal Free Hospital, Pond Street, Hampstead, London NW3 2QG (Tel: 071 794 0500)

Personnel Management Course
13-14 October 1992, RGCP, London
Further details from: (see entry for 18-19 September 1992)

Pharmacovigilance in Europe: What's Next?
16 October 1992, Brussels, Belgium
Further details from: IBC Technical Services, Gilmoora House, 57-61 Mortimer Street, London W1N 7TD (Tel: 071 637 4383; Fax 071 631 3214)

The Skin from A to Z
17-18 October 1992, San Francisco, California
Further details from: Extended Programs in Medical Education, University of California, Room LS-105, San Francisco, CA 94143-0742, USA (Tel: 415 476 4251)

3rd EMASH Seminar: Economic Issues of Smoking and Quit Smoking
22-24 October 1992, Bari, Italy
Further details from: AMETOS/EMASH, 26 rue Millière, 33000 Bordeaux, France (Tel: 56 91 64 01; Fax: 56 91 79 83)

Cleveland CO2 Laser Course in Otolaryngology, Head and Neck and Oral Surgery
23-24 October 1992, Stainton Village, Cleveland, UK
Further details from: Miss S Fountain, 8 Longbeck Road, Marske-by-the-Sea, Redcar, Cleveland TS11 6EZ (Tel: 0642 478209; Fax: 0642 488357)

Registration of Pharmaceuticals in Europe
26-28 October 1992, Toronto, Canada
Further details from: (see entry for 16 October 1992)

Management of Infertility
28 October 1992, RCOG, London
Further details from: (see entry for 15-16 August 1992)

Inaugural Meeting of the European Gait Analysis Group
30-31 October 1992, Oswestry
Further details from: Mrs G M Thomas, ORLAU Movement Analysis Laboratory, Robert Jones & Agnes Hunt Orthopaedic & District Hospital, Oswestry SY10 7AG (Tel: 0691 655311)