Contemporary Pediatric Splenectomy: Indications, operative approaches, and clinical outcomes

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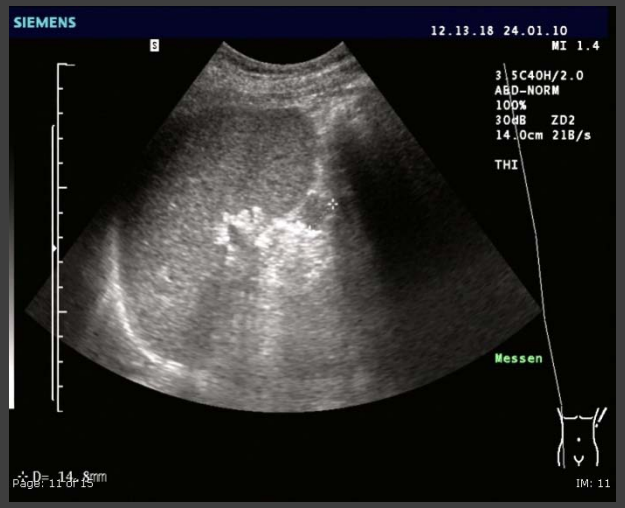
BACKGROUND

- History of splenectomy
  - First splenctomy 1549 (splenomegaly)
  - Splenctomy for ‘splenic anemia’ 1910
  - First laparoscopic splenectomy (LS) 1991
  - First pediatric LS 1993

BACKGROUND

- Technical difficulty
- Accessory Spleen
- Suitability for splenomegaly
- Efficacy vs. Morbidity



METHODS

- Design:
  - Single institution case series
  - Retrospective analysis
- Setting:
  - The Children's Hospital, Denver, CO
  - Urban tertiary care children's hospital

METHODS

- Patients:
  - 118 children
  - January 2000 to July 2008
- Statistical analysis: SAS (v. 9.1)
  - Chi square, Fischer's
  - ANOVA, Wilcoxon non-parametric test
  - Mixed models

DEMOGRAPHICS AND DISEASES

Mean age, years	8.9
Gender	68 girls (58%), 50 boys
Congenital Hemolytic Anemia	82 (69.5%)
Hereditary Spherocytosis	70
Hemoglobinopathy	12
Thrombocytopenia	22 (18.5%)
ITP	21
TTP	1
Other	14 (12%)
Hematologic	9
Non-hematologic	5

OPERATIVE DATA

Type of operation / additional procedures

	Lap	Open	*P* Value
Splenectomy	103	15	NA
Chole.	19 (18 %)	2 (13%)	>.99
Acc. splen.	13 (13%)	3 (20%)	0.4

OPERATIVE OUTCOMES

Length of stay, days

Lap	Open	*P* Value
2	4	<0.0001

Median operative time, minutes

	Lap	Open	*P* Value
Overall	111	119	0.55
w/o add'l proc	103.5	103.5	0.8

SPLENOMEGALY

Splenomegaly (10 largest spleens)

	Lap	Open	*P-value*
Weight, g	501	400.5	0.02*
Volume, cm^3	1068.5	977	0.1

(Massive splenomegaly> 500 cm^3)

SURGICAL OUTCOMES

bjh review

Risks and benefits of splenectomy *versus* no splenectomy for hereditary spherocytosis – a personal view

Robert F. Schilling

Professor of Medicine (Emeritus), School of Medicine and Public Health, University of Wisconsin-Madison, Madison, WI, USA

Pediatr Blood Cancer 2008;51:513–516

Severe Chronic Refractory Immune Thrombocytopenic Purpura During Childhood: A Survey of Physician Management

Cindy E. Neunert, MD,[1,2]* Brianna C. Bright, MA,[3] and George R. Buchanan, MD[1,2]

33% of hematologists would recommend splenectomy

→ concerns about efficacy and morbidity

HEMATOLOGIC OUTCOMES

Congenital Hemolytic Anemia (N=82):

	Pre-op	Follow-up	*P* Value
Hematocrit	31.6	41	<0.0001
Retic Count	13.2	3.3	<0.0001

HEMATOLOGIC OUTCOMES

Hereditary Spherocytosis (N=70)

	Pre-op	Follow-up	*P* Value
Hematocrit	31.4	42.6	<0.0001
Retic Count	14.6	1.8	<0.0001

Hemoglobinopathy (N=12)

	Pre-op	Follow-up	*P* Value
Hematocrit	32.8	35.3	0.26
Retic Count	5.2	7.4	0.44
PRBC units	5	0.8	0.01

HEMATOLOGIC OUTCOMES

Immune Thrombocytopenic Purpura, platelet counts

	CR (n=13)	PR (n=3)	NR (n=3)	*P* value
Diagnosis	5.6	17.7	2.5	0.08
Pre-op	24	23	7.3	0.43
Follow-up	399	64	20	<0.0001

* Post-splenectomy platelet counts measured at 43 ± 32 (17-140) days. Final follow-up, at 362 ± 693 (18-2364) days.

COMPLICATIONS

Peri-operative complications

	Lap	Open	*P* Value
Intra-operative	4 (3.9%)	0	>0.99

Bleeding (N=2); Technical difficulty (N=2) → Converted to open

Early post-op	5 (4.9%)	0	>0.99

Bleeding → transfusion (N=2); Wound infection; Blast crisis; Ileus

COMPLICATIONS

30 day readmission rate 3.9%

2 pneumonia
1 fever
1 bacteremia

BMJ 312:430 (Published 17 February 1996)

Education and debate

Guidelines for the prevention and treatment of infection in patients with an absent or dysfunctional spleen

Working Party of the British Committee for Standards in Haematology Clinical Haematology Task Force

Overwhelming post-splenectomy sepsis:

Published incidence of 3.3%, mortality 1.7%

Our regimen: vaccination but no prophylactic antibiotics
delay splenectomy until age 5

CONCLUSIONS:

- LS is the preferred alternative to OS in the setting of pediatric hematologic disease:
  - Improved LOS
  - Equivalent operative time
  - No increased risk of missed accessory spleens
  - No contraindication with splenomegaly
  - Minimal morbidity and excellent outcomes
  - OPSI not a reasonable justification for avoiding splenectomy.


The Children's Hospital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