



The Role of Interventional Radiology in Paediatric Splenic Trauma

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Introduction

Most paediatric splenic injury is managed conservatively

Cases requiring intervention, secondary to haemorrhage, used to all be managed in theatre with a laparotomy +/- splenectomy

Equipment and experience working in smaller children has improved greatly over recent years making splenic embolisation in interventional radiology (IR) an increasing option

This avoids the risk of a major operation, with the added advantage of splenic salvage and preserved immune function

Aim

To describe the incidence of splenic injury from the last 5-years
To look at cases managed in theatre, IR and conservatively

Method

Data was collected from the Collector Registry Trauma Database at The Royal London Hospital (a Major Paediatric Trauma Centre in London) from 2015 – 2020.

Data was collected on demographics, mechanism of injury (MOI), injury severity score (ISS), radiological grade of splenic injury, the need for transfusion or intervention, length of stay (LOS) and mortality was collected.

The American Association for the Surgery of Trauma (AAST) Organ Injury Scale (OIS)

Radiological Grade of Injury	Type	Description of Injury
1	Haematoma	Subcapsular < 10% surface area (SA)
	Laceration	Capsular tear < 1cm depth
2	Haematoma	Subcapsular 10 – 50% SA
	Laceration	Intraparenchymal < 5cm depth
3	Haematoma	Subcapsular > 50% surface area or expanding or ruptured
	Laceration	>3cm depth or trabecular vessel involvement
4	Laceration	Segmental or hilar vessels involved. >25% devascularisation
5	Laceration Vascular	Shattered spleen Hilar injury devascularising the spleen

Results

There were 1,758 paediatric trauma activations
Incidence of splenic injury was 2% (n=35)

22 cases male (63%) and 13 female (39%)
Mean age 11 years (9 months – 16 years)
14% (n=5) required transfusion due to major haemorrhage

Blunt injury most common mechanism 91% (n=32)

- 57% falls
- 34% RTCs
- 3% penetrating (stab injury)

Management	Conservative	Theatre	IR
Overall number	28 (80%)	4 (11%)	3 (9%)
ISS (mean)	14 (4 – 30)	31 (20 – 38)	29 (16 – 41)
Radiological grade	Most III (I – V)	≥IV (IV and V)	≥IV (IV and V)
Length of stay (mean)	12 days (1 – 103)	29 days (4 - 60)	12 days (8 – 20)
Outcome	100% survival	100% survival	100% survival

Conclusion

IR offers a safe alternative to surgical management in paediatric splenic injury or when conservative management fails.

IR cases had a much shorter length of stay compared to theatre cases despite similar severe ISS and high radiological grading.

IR is not definitive management and monitoring to detect re-bleeding post procedure is important. There is also the question of when to re-image for complications, such as a pseudo-aneurysm

References

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