Shock Colon

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INTRODUCTION

- Non-occlusive mesenteric ischaemia (NOMI) is rare in children.
- The likely mechanism is hypoperfusion/ reperfusion injury.
- The outcome tends to be poor.
- Promptness of colonic resection does not seem to improve survival.
- In our institutions we recognised a series of critically ill patients with a similar pattern of colonic injury.

AIM

Identify:

1. underlying pathophysiology
2. key learning points
3. patterns in presentation and correlate these with surgical and pathology findings.
4. possible means of improving survival

METHODOLOGY

- 2.5 year period (2018-2020)
- 2 institutions providing tertiary paediatric surgery services
- 4 consecutive cases of idiopathic colonic gangrene associated with acute cardiovascular collapse
- Review of clinical notes, histology, radiology, laboratory results

RESULTS

4 critically ill children

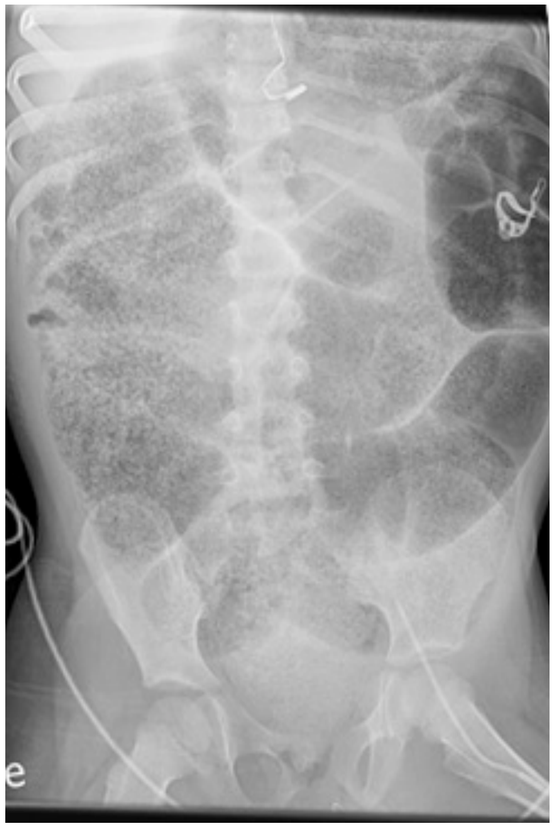
3 had cardiac arrest before colectomy.

All 4 children:

- developed abdominal distension **after** resuscitation
- had significant derangement of blood sugar on monitoring
- received inotropic support before surgery
- had total colonic ischaemia, and normally ganglionated bowel on histology
- no infective organism was isolated (specifically all negative for clostridium difficile)

Case	1	2	3	4
Age (years)	10	14	5	1.5
Background	Anxiety Urinary incontinence	Angleman syndrome	Previous hypoglycaemia when unwell	NAD
Presentation	7 days headache, back pain, 1 vacant episode	2x cardiac arrests Well 24hrs previously	1 week of polyuria and polydipsia then sudden deterioration	2 weeks of cough, thirst, sudden respiratory deterioration
Deterioration	24hrs	<12hrs	12 -24hrs	<12hrs
Cardiac arrest	Yes	Yes	No	Yes
Abdominal distension	Post resuscitation	Post resuscitation	Post resuscitation	Post resuscitation
Glucose	Raised/ ? DKA*	Hypoglycaemia	Raised/ ? DKA	Raised/ ? DKA
DIC	Yes	No	No	Post op
Inotropes	Yes	Yes	Yes	Yes
Operative findings	Necrotic colon	Dilated colon	Necrotic colon	Ischaemic colon
Histology	Ischaemic	Ischaemic	Ischaemic	Ischaemic
Ganglion cells	Yes	Yes	Yes	Yes
Progression	Multi-organ failure	Multi-organ failure	Cerebellar oedema	Cerebral ischaemia
Outcome	Death	Death	Death	Death

* DKA- diabetic ketoacidosis



CONCLUSION

- No specific condition was identified that predisposed these 4 children to develop NOMI and colonic injury.
- Hypothesis: a working diagnosis of DKA may have led to inadequate fluid resuscitation before inotrope administration –not proven
- Not able to clearly identify means of prevention.
- Despite colonic resection, as part of the resuscitation, outcomes were very poor leading to multi-organ failure and death.

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