



Conservative management of pediatric pancreatic trauma after blunt abdominal injury

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Introduction

- Pancreatic trauma is **rare** (<2% of all pediatric abdominal injuries.) but carries significant morbidity when diagnosis is delayed.
- Historically, ductal transection was considered an absolute indication for **surgical resection**.
- Recent evidence supports **non-operative management (NOM)** in stable children, even in high-grade injuries (AAST grade III–V), to preserve pancreatic tissue and reduce complications.
- This case series reviews outcomes of six pediatric patients managed conservatively at a tertiary Tunisian center.

Methods

- Study design:** Retrospective, descriptive study (January–June 2025).
- Conducted at the Department of Pediatric Surgery, Children's Hospital of Tunis.
- Inclusion:** Children < 16 years with isolated blunt pancreatic injury.
- Exclusion:** Concomitant visceral injuries requiring surgery.
- Data:** Demographics, mechanism, clinical/lab findings, imaging (AAST-OIS grade), management, and outcomes.

Management Protocol

- NOM criteria:** Hemodynamic stability and absence of duodenal injury.
- Conservative measures:** Bowel rest, nasogastric decompression, IV fluids, analgesia, and parenteral nutrition.
- Monitoring:** Serial lipase, clinical status, and repeat imaging if symptomatic.
- Drainage indications:** Persistent or organized peripancreatic collections (>5 days).
 - Endoscopic transgastric drainage (central collections).
 - Image-guided percutaneous drainage (peripheral collections).

Results

Patients: 6



Mean age = 8.2 years.

Mechanisms:

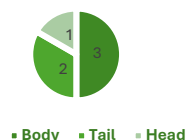


Presentation: Epigastric pain, vomiting, mild tenderness; no peritonitis.

Biology: Lipase ↑ ~12× ULN.

Imaging (CECT):

- Complete transection
- No duodenal/vascular injury.



Clinical Course : All patients initially treated conservatively.
Five developed organized collections (day 5–8, mean 120×70 mm).

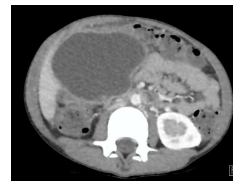


Figure 1. Axial contrast-enhanced CT showing pancreatic body contusion with peripancreatic fat stranding and retro-pancreatic fluid collection consistent with a grade II–III pancreatic injury.

Drainage performed:



One child improved without intervention.

Outcomes : Complete recovery in all within 5 weeks.

Hospital stay ≈ 17 days.

Discussion

- Our experience reinforces growing evidence supporting **NOM for pediatric pancreatic trauma**, even in cases of **ductal transection**.
- All six cases recovered without surgical intervention, consistent with **success rates >85%** reported in recent pediatric trauma literature.
- Pancreatic duct disruption predisposes to **peripancreatic fluid collections**, yet many can be managed with **minimally invasive drainage** rather than resection.
- The absence of duodenal injury** was critical for conservative success.
- Comparative Literature:**
 - Rosenfeld et al., 2019: NOM with drainage led to 93% recovery without surgery.
 - Mora et al., 2016 (NTDB): No mortality difference between operative and NOM; lower morbidity with NOM.
 - Naik-Mathuria et al., 2018: "Less is more" approach validated with standardized NOM pathways.
- Determinants of NOM success:**
 - Early diagnosis with CT or MRI to define ductal status.
 - Hemodynamic stability and absence of other organ injury.
 - Close monitoring of serum enzymes and clinical evolution.
 - Timely access to pediatric **endoscopic or interventional radiology** teams.
- Implications for practice:**
 - Supports a selective, step-up strategy for pancreatic trauma:
 - Conservative management first.
 - Drainage for symptomatic collections.
 - Surgery reserved for failed NOM or associated duodenal lesions.

Conclusion

In hemodynamically stable children with isolated pancreatic injury:

- Conservative management** with vigilant monitoring is **safe, effective, and organ-preserving**.
- Selective drainage** of collections ensures resolution without resection.
- No mortality or long-term sequelae** observed in this series.
- Our study reinforces global shift toward **minimally invasive, conservative paradigms** in pediatric pancreatic trauma.

- Rosenfeld EH, Vogel AM, Jafri MA, et al. Management and outcomes of peripancreatic fluid collections and pseudocysts following non-operative management of pancreatic injuries in children. *Pediatr Surg Int*. 2019;35(7):771–8.
- Mora MC, Wong KE, Friderici J, et al. Operative vs nonoperative management of pediatric blunt pancreatic trauma: evaluation of the National Trauma Data Bank. *J Am Coll Surg*. 2016;222(6):977–82.
- Naik-Mathuria B, Rosenfeld EH, Saito JM, et al. Prospective outcomes of standardized non-operative management of pancreatic trauma with ductal injury in children: less is more. *J Pediatr Surg*. 2018;53(12):2392–6.