

Pancreaticoduodenal injuries at Auckland City Hospital 2007–2020

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Introduction:

Auckland City Hospital (ACH) is a tertiary referral hospital in New Zealand with Trauma and Hepatopancreatobiliary units and admit approximately 384 major trauma patients per year [1].

Pancreaticoduodenal injuries are uncommon due the relative protection of a posterior anatomical position and have an incidence of less than 1% of all trauma [2]. Organ injuries can be graded using the American Association for the Surgery of Trauma grading system (AAST) [3].

Aim:

To assess the overall incidence of pancreaticoduodenal injuries in adult trauma patients and review the clinical management performed at ACH.

Method:

A retrospective study was undertaken. Patients with pancreatic or duodenal injuries were identified from the trauma registry at ACH. The patients' clinical records were reviewed for all patients admitted from 2007 to 2020 with pancreatic or duodenal trauma. Pancreatic and duodenal injuries were graded according to the AAST organ injury scale [3]. Investigations reviewed included radiology and biochemistry. Operation and clinical notes were reviewed for clinical management.

Fig. 1 Number of cases of pancreatic injuries per AAST grading of injuries

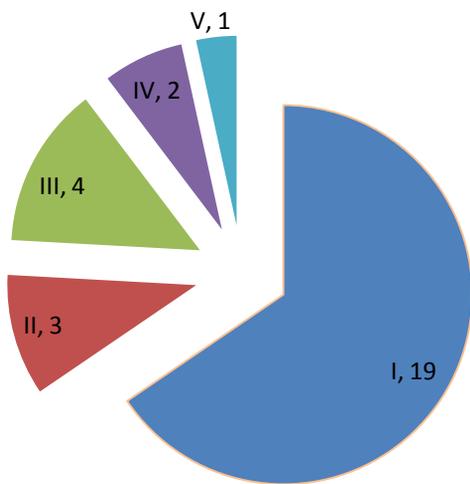


Fig. 2 Number of cases of duodenal injuries per AAST grading of injuries

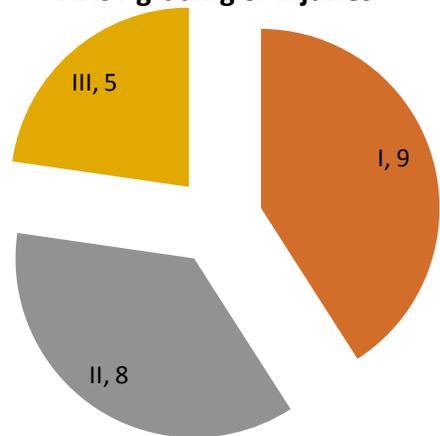


Table 1. Management of injury type based on AAST grading.

Injury Type	Grade	Management		
		Non-operative	Laparotomy	Ortho
Duodenal	I	1	5	1
	II	1	4	1
	III	-	3	-
Pancreatic	I	5	10	-
	II	1	1	-
	III	1	3	-
	IV	-	1	-
	V	-	1	-
Mixed*	I	1	1	-
	II	-	2	-
	III	-	1	-
	IV	-	1	-

* based on the highest grade injuries of either duodenal / pancreatic

Results:

45 patients were diagnosed with pancreatic or duodenal trauma. Six patients had combined pancreaticoduodenal injuries, 16 had only duodenal injuries and 22 had only pancreatic injuries. Motor vehicle collisions were the most common mechanism of injury (29/45). Grade I organ injuries were the most common pancreatic (19/29) and duodenal injuries (9/22). The majority of patients underwent laparotomy (33/45) for concomitant haemodynamic instability or for organ specific indications including duodenal perforation or pancreatic ductal injury. 10/45 patients were managed non-operatively, of which the majority had Grade I or II organ injuries (9/45).

Conclusion:

The incidence of pancreaticoduodenal injury at ACH is rare (45 patients in 13 years) and in keeping with modern trauma literature [2]. The high rate of operative management probably reflects the magnitude of energy required to injure the pancreas and duodenum, with associated hypovolaemic shock necessitating surgical control of haemorrhage in the majority, rather than operative management of the pancreaticoduodenal trauma per se.

References:

1. Auckland DHB Trauma Services. Auckland City Hospital Trauma Registry Report 2019.
2. Coccolini F, Kobayashi L, Kluger Y. et al. Duodeno-pancreatic and extrahepatic biliary tree trauma: WSES-AAST guidelines. *World J Emerg Surg* 14, 56 (2019).
3. Moore EE, Cogbill TH, Malangoni MA, et al. Organ injury scaling, II: Pancreas, duodenum, small bowel, colon, and rectum. *J Trauma*. 1990;30(11):1427-1429.