

## Giant duodenal perforation: least studied prognostic factor

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Following the introduction of H<sub>2</sub> Receptor Blockers and Proton Pump Inhibitors, there has been a sharp decrease in elective peptic ulcer surgery. However, emergency operations for complications such as perforations are on the rise [1-2]. Duodenal ulcer perforation is the most catastrophic complication of peptic ulcer and is a common cause of peritonitis, remains a well-known surgical emergency requiring prompt surgical intervention [3-4]. In spite of modern advances in surgical, anesthetic and ancillary facilities it still assumes life threatening dimensions [3]. The overall reported mortality rate for perforated peptic ulcer varies between 1.3 to nearly 20 percent in different series and recent studies have shown it to be around 10% [5].

Factors such as advancing age, concomitant disease, pre-operative shock, delay in presentation, operation and size of perforation have been defined by various authors to be risk factors for mortality [5-6]. Size of perforation, i.e. giant duodenal ulcer is an important measure in determining the outcome. Giant duodenal ulcer perforation is the most severe variant of perforation and is extremely rare and challenging condition to manage [3]. Giant duodenal ulcer perforation is very less studied and under reported because of its extreme rarity and actual size of perforation is definitely known during intra operative period only and due to this a definite protocol for its management have not been formulated.

Available English language literature has failed to uncover any specific size beyond which to label this perforation as a giant perforation. Even review of literature has failed to reveal any specific accepted definition of small and giant duodenal ulcer perforation or any specific recommendation

regarding management of giant/large perforation, which are said to be difficult to manage and have anecdotally been associated with a high leak rate and mortality [5].

There is a paucity of data in the literature regarding giant duodenal ulcer, some case reports and very few series. One of the reason for this is that giant duodenal ulcer are uncommon entity with an available incidence is 2.4% to 3.2% [1, 7]. However, giant duodenal ulcer perforation and delayed presentation is not uncommonly encountered in Indian surgical practice [4]. Size of giant perforation has arbitrarily been defined as by various authors as being greater than 0.5 cm [3], 1 cm [8-9] 2 cm [6,10] and 2.5 cm [4] in greater diameter. However, more than 2 cm criteria used by most of the investigator described in entity of giant duodenal ulcer perforation [4]. Various technique such a Omentopexy, Omental Plugging, Control Tube Duodenostomy, Partial Gastrectomy, Jejunal-serosal patch, Jejunal pedicle graft, proximal gastrojejunostomy and even gastric disconnection have been described in literature [3-5].

However as is clear, each of these procedures not only prolongs the surgical time, but also requires a high degree of surgical expertise which may not be available in the emergency setting [4]. Moreover, some patients are already in morbid condition after leakage and also these procedures carry a degree of morbidity [4]. The immediate definitive operation for peptic ulcer perforation is never safe [11]. The classic pedicled omental patch that is performed for plugging of these perforations was first described by Cellan

Jones in 1929 [12], although it is wrongly attributed to Graham, who described the use of a free graft of omentum to repair the perforation in 1937 [13]. Omentopexy technique is useful for small perforation. It is associated with leakage. While omental plugging technique is used for large perforated peptic ulcer which avoids the development of omental ischemia and subsequent re-leakage [9, 11].

Cranford et al advocated gastric disconnection with truncal vagotomy, antrectomy and triple-tube-ostomy and managed four patients successfully using these techniques [14]. Recently, a novel technique using pedicled abdominis muscle flap was described for repair of post-surgical leakage after duodenal ulcer perforation repair [15]. None of the above

mention procedure is immune to the risk of post-surgical leakage because these perforations are hazardous due to extensive duodenal tissue loss and surrounding tissue inflammation which are said to preclude simple closure using omental patch often resulting into post-operative leak or gastric obstruction [4, 5].

The tendency of leak after repair may be further aggravated due to high intra luminal pressure, tendency of the mucosa to extrude through the suture line and auto digestive enzymes of the pancreas and bile acids add to the risk of breakdown of suture line along with complex anatomy of duodenum and marginal blood supply shared with pancreas [5, 7].

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