



Traumatic Duodenal Perforation- Our Experiences

KEYWORDS

Duodenal perforation, Duodenorrhaphy, Ryle's tube, Gastrojejunostomy

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ABSTRACT

The aim of the study was to share our experiences with duodenal injuries and compare the outcome of simple duodenorrhaphy from the duodenorrhaphy with ante grade duodenal decompression by Ryle's tube, gastrojejunostomy and delayed oral feeding quite contrary to being a retroperitoneal structure, duodenal perforation preceded always with features of peritonitis. Kocherisation of duodenum and opening of the lesser sac were also tested as an important maneuver preoperatively together with the bilious staining of the tissues in the vicinity. A careful examination of all the intraperitoneal viscera and spaces was a rewarding practice.

Introduction-

Since duodenum is a retroperitoneal structure, the traumatic perforation is a rarity. It constitutes just 0.28% to 3.7% of all the trauma related laparotomies. It occurs due to crushing or shearing forces on the abdomen. Finally diagnosis is also a great concern and at times the diagnosis is even missed. An isolated duodenal perforation is a rarity and it is usually associated with the injuries of other abdominal organ that may range from 1 to 4. There are many operative options for its treatment that include-simple duodenorrhaphy, tube duodenostomy, triple tube procedure, pancreaticoduodenectomy with Roux-en-y, gastrojejunostomy with simple duodenorrhaphy with ante grade ryles tube decompression of the duodenum etc. In the end the outcome very substantially depends upon the time of operation. A delayed intervention may not give a desired result.

Materials and methods-

The study was done in all together in 10 cases of duodenal perforation attending emergency department of JLNMC, Bhagalpur, Bihar. The patients were of any age group and gender. Their initial diagnosis was traumatic peritonitis and all of them were diagnosed to have duodenal perforation at the operating table. Preoperatively they were put for USG of the abdomen, X-ray abdomen in erect posture, routine blood examinations. After due resuscitation the abdomen were opened through midline incision. In all but three we did the kocherisation of duodenum and opening the lesser sac to the posterior surface of the duodenum and stomach respectively.

Our study was having grade-II injuries as per M et al. we performed simple duodenorrhaphy in altogether 5 cases. In the remaining 5 cases, we did simple duodenorrhaphy plus gastrojejunostomy with ante grade Ryle's tube decompression of the duodenum. In all the cases the Ryles tube aspiration and peritoneal drainage for 2 weeks. We started the oral feeding only after 2 weeks. The Ryles tube was guided to the 3rd part of the duodenum by the gastrojejunostomy opening.

Observation and results-

In our study all the patients were male and had the injuries in the road traffic accidents. Only 50% of the patients were having hypovolemic shock. Bilious staining of the vicinity of tissues to locate injury was a very important finding. The trauma in 2nd and 3rd part of the duodenum of

all the ten cases. None was in 1st part. 8 were in 2nd and 3rd part, 2 were in 4th part of the duodenum. We did the kocherisation of the duodenum and opening of the lesser sac in altogether 7 cases. In remaining 3, in which the above procedures was not performed, one recovered fully, one succumbed to injury and in one we had to open the abdomen due to large amount of bilious fluid. In that case on kocherisation of duodenum, one more rent of grade II was seen in the 2nd part of duodenum. In the rest 5 cases, in which we performed duodenorrhaphy together with posterior gastrojejunostomy and prolong ante grade ryles tube decompression of duodenum. The recovery was near total. Although one case faced the hematemesis and malena on the 20th post-operative day which responded well to usual measures. We always did a thorough inspection intra-peritoneally to see any other injuries. The one mesenteric haematoma in three cases and with small intestinal injury were also found in 5 cases. In 2 cases we had both anterior and posterior perforation of duodenum.

Discussion-

In our study all the cases were due to blunt abdominal trauma falling RTA. It is said that perforation of duodenum being a retroperitoneal happening is very oftenly missed. In our study we were at the clear cut diagnosis at the traumatic peritonitis before the operation. Nevertheless, we reached the diagnosis of duodenal perforation only at the operation table. To reach at the final diagnosis on the operation table, we took the assistance of bilious staining of the tissue in the vicinity of the injury, kocherisation of the duodenum, lesser sac opening and thorough intra-peritoneal inspection. Of the 3 cases in which we did not performed kocherisation and lesser sac opening, we missed the posterior duodenal perforation of grade II in 1 case.

Hemanga K bhattarjee et al (2011) had also missed the posterior duodenal perforation, when he had omitted the kocherisation. Zelic H et al (2010) also reported the need of kocherisation to detect the multiple duodenal perforations. In 50% of cases we did only simple duodenorrhaphy. Out of these we faced post-operatively duodenal fistula in 3. This is quite contrary to the finding of Sadhkl girgir et al (2009) in which they had found satisfactory result. Swartz principles of surgery 2010 also advocate the management of duodenal perforation by simple duodenorrhaphy. In our case out of the 3 leakage, 1 was due to missing the posterior duodenal perforation. Only 1 case succumbed to injury

and the remaining 1 was very trivial in nature and responded well conservatively. However Hemanga k bhattacharjee et al (2010) recommended the triple tube decompression (i.e. tube gastrostomy, retrograde tube duodenostomy and feeding jejunostomy) in the cases of multiple duodenal perforation, or where the chances of sepsis is much more. In the total of 5 cases (50%) we also followed the principle of Hemanga K bhattacharjee et al. After the duodenal repair in two layers, we did the decompression of the duodenum by posterior gastrojejunostomy with prolonged antegrade ryles tube aspiration of the duodenum in view of triple tube procedure. All but 1 recovered fully. In our case though we faced the problem of hematemesis and maelena, which responded well to the usual means. Thus our results were quite comparable to Hemanga K bhattacharjee et al.

Conclusion-

The traumatic duodenal perforation is becoming more rife with the growing RTA. The problem of timely diagnosis doesn't usually come in front. Per operatively the bilious staining of the tissues, kocherisation of duodenum and opening the lesser sac help much in on table detailed diagnosis. A careful thorough intraperitoneal examination alleviates the chances of other visceral injuries. In a solitary garde II duodenal trauma where the history is short and the chances is remote, a 2 layered simple duodenorrhaphy may suffice but where the perforations are multiple in number or presentation is pretty and chances of infection are more, a two layered duodenorrhaphy with the compression of the duodenum either by triple tube procedure or by ours i.e. posterior gastrojejunostomy, ryles tube decompression of duodenum should be tried.

It needs a study with large number of cases and furthermore it should be peer reviewed to eliminate any bias.

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