Original Research Article

Clinicodemographic study of Peptic Perforation

Jayeshkumar B Bagada*, Alpesh B. Amin, Rajesh K Patel

B.J.Medical College and Civil Hospital, Ahmedabad ,Gujarat, India

Received: 04-11-2020 / Revised: 16-11-2020 / Accepted: 05-12-2020

Abstract

Objective: Peptic Ulcer perforation is commonest emergency faced by the surgeons. Objective of this study is to assess the surgical outcome and prognosis of peptic ulcer perforation. **Materials & Methods :** Data from 25 patients who underwent emergency exploratory laparotomy for peptic ulcer perforation were recorded retrospectively in general srgery department of tertiary care hospital of Ahmedabad from November 2017 to November 2020. Demographic data with clinical presentation, intraoperative findings, surgical procedures and post-operative outcome were analysed. **Result :**The mortality rate was 16%. Of total patients, 44% had co-morbid illness. Co-morbid illness is also one of the reason for mortality in majority of elderly patients. Most common complication was Wound Infection. Male outnumbered the Females. **Conclusion:** Early patient presentation to the hospital with adequate resuscitation is must to reduce morbidity and mortality in peptic ulcer perforation patients.

Key words: Perforation,surgery,prognosis

Introduction

The incidence of emergency surgery for perforated ulcer has remained relatively unchanged and potentially increased.[1,2] Perforation is the second most frequent complication after bleeding.[3]

The objective of the study was to determine patient presentation, management and postoperative complications of Perforated peptic ulcer disease.

The pattern of perforated Peptic ulcer Disease has been reported to vary from one geographical area to another depending on the prevailing socio-demographic and environmental factors. In the developing world, the patient population is young with male predominance, patients present late, and there is a strong association with smoking. In the west, the patients tend to be elderly and there is a high incidence of ulcerogenic drug ingestion.[3,4] It is now widely accepted that infection with H. pylori and the consumption of NSAIDs are the most important factors in the development of peptic ulceration.[5,6]

**Correspondence*

Dr. Jayeshkumar B Bagada

B.J.Medical College and Civil Hospital, Ahmedabad, Gujarat, India.

E-mail: jbagada@yahoo.in

Materials and Methods

The retrospective observational study was conducted at the Department of General Surgery, B.J. Medical College and Civil Hospital Ahmedabad, from November 2017 to November 2020. The study population included 25 patients of Peptic ulcer perforation (diffuse or localized) presenting to the surgical emergency of Civil Hospital Ahmedabad, who underwent emergency exploratory laparotomy. Only those patients who underwent exploratory laparotomy for management of perforation were included. Patients with cancer perforations were excluded from study. Individual patient's Medical records were reviewed to extract data and data was retrospectively recorded in a computerised database. Cases were studied with respect to clinical features at the time of presentation, comorbid conditions, radiological investigations, operative findings, and postoperative outcome. Preoperatively all patients had intravenous antibiotics which was continued postoperatively. Medical treatment with proton-pump inhibitors was begun preoperatively in every patient and continued for a minimum of 14 days. After establishing the clinical diagnosis of perforation peritonitis the patients were prepared for emergency exploratory laparotomy. On performing emergency exploratory laparotomy, the

operative findings were noted and managed accordingly with modified Graham's Live Omentopexy.

Margin of perforation was excised and examined histopathologically to exclude malignancy. In 02 cases feeding jejunostomy was also done due to the large size of the perforation. All patients were then treated in the postoperative ward initially under the cover of parenteral broad spectrum antibiotics and fluids; orals were started on the appearance of bowel sounds. Patients were discharged after proper diet intake, mobilisation and passing stool.

Results

Out of 25 patients with peptic perforation studied. Peak incidence was noted in the 3rd and 7th decades of life . The majority of patients in our study were male, 19 (76%) while there were 6 (24%) female patients. Male to female ratio was 3.1:1. Majority of patients were younger than 45 years.

Table 1: Gender and Male:Female Ratio

	Male	Female	M:F Ratio
Current study (Total 25 patients)	19 (76%)	06 (24%)	3.1:1
Mekbib B. et al [6] (Total 136 patients)	115 (84.66%)	21 (15.44%)	5.5:1
R S Bali et al [7] (Total 400 patients)	274 (68.5%)	126 (31.5%)	2.1:1
John Boey et al [8] (Total 259 patients)	204 (78.7%)	55 (21.23%)	3.6:1
A.I.Ugochukwu et al [9] (Total 76 patients)	58 (76.31%)	18 (23.68%)	3.2:1
Etonyeaku et al [10] (Total 45 patients)	37 (82.22%)	8 (17.77%)	4.5:1

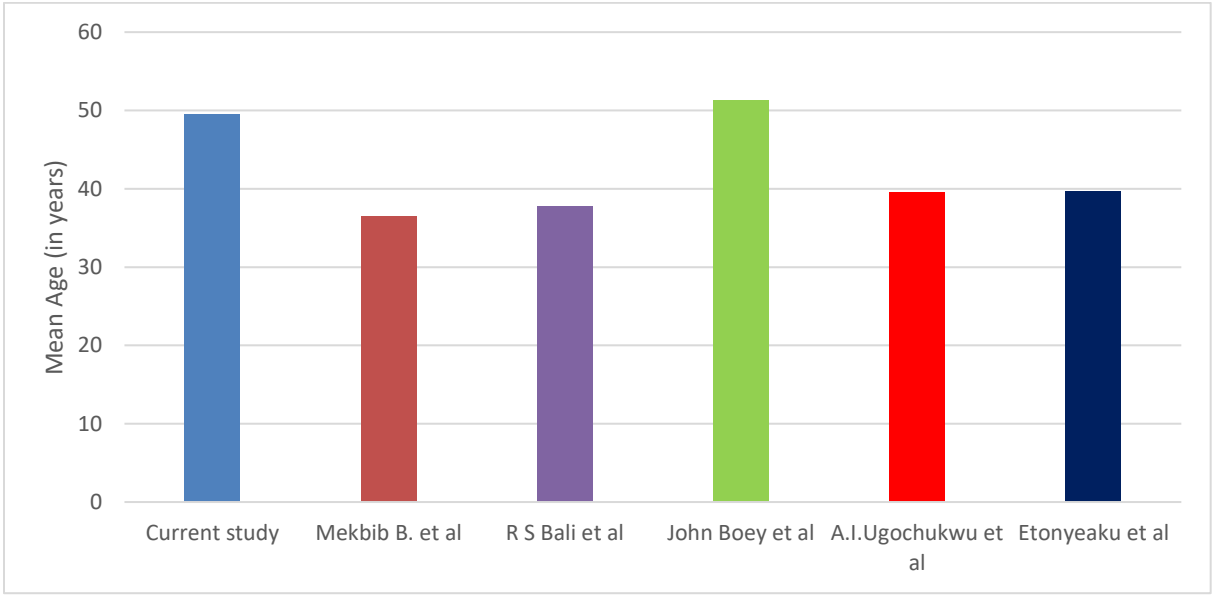

Fig 1:Mean Age (in years)

Mean age in our study was 49.44 years ranged from 22 to 82 years. 7 Patient presented within 24 hours after symptom onset and 18 patients presented 24 hours after symptom onset. All of the patients with systolic BP< 90mmHg came after 24 hours of onset of symptoms. Abdominal tenderness was demonstrable in all of the patients.15 patients had pre-pyloric region perforation, 3 had pyloric perforation, 3 patients had perforation, body of stomach, 4 patients had duodenal anterior wall perforation. Size of perforations varied as 11 patients had < 5 mm size perforation 10 patients had 5mm to 10 mm size, 04 patients had >10 mm size perforation. Amount of peritoneal fluid was 50 millilitres to 4000 millilitres.

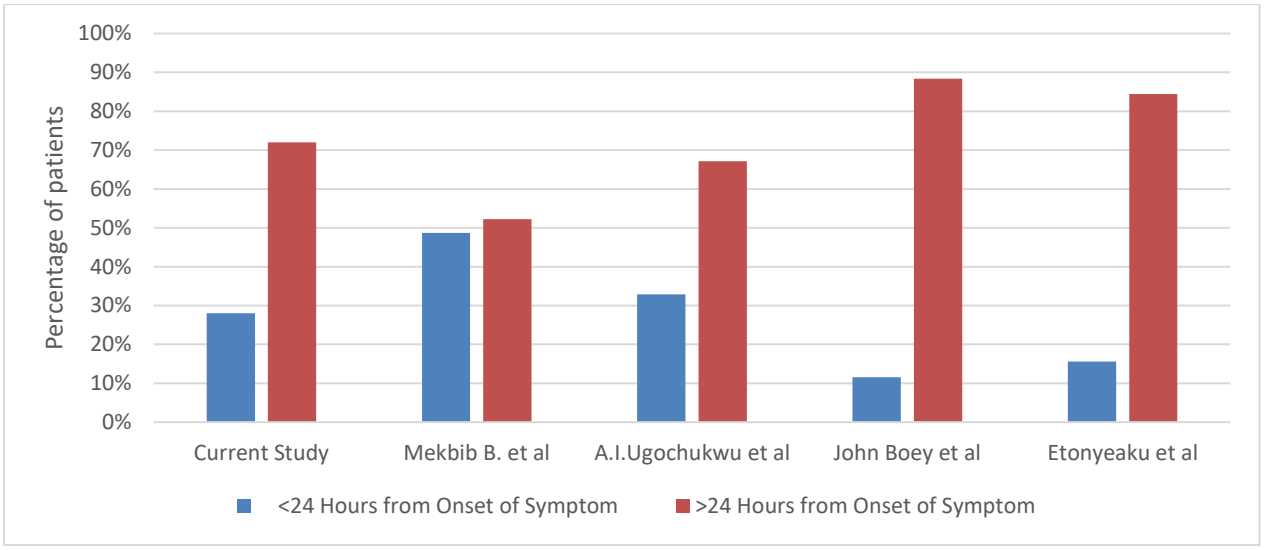

Fig 2:Patient Presentation (<24 hours or >24 hours of symptom onset)

Table 2: Symptomatology

	Current Study (25 patients)	Mekbib B. et al[6] (136 patients)	A.I.Ugochukwu et al [9] (76 patients)	R S Bali et al [7] (400 patients)
Abdominal Pain	25 (100 %)	136 (100%)	69 (90.8%)	392 (98%)
Altered Bowel habit	4 (16%)	--	--	250 (62.5%)
Nausea & Vomiting	10 (40%)	136 (100%)	56 (69%)	166 (41.5%)
Abdominal distension	7 (28%)	--	66 (86.80%)	112 (28%)
Tachycardia(>100/minute)	14 (56%)	87 (63.97%)	57 (75%)	122 (30.5%)

In our study, most common symptom was abdominal pain which is comparable with other studies as shown in table 02. Average Post-operative Hospital Stay was 7.8 days ranged from 05 to 12 days.16 of total 25 patients developed complications and most common complication was Surgical site infection. The other complications were wound dehiscence, Hospital-acquired pneumonia, postoperative collections and repair site failure. In this study, mortality was 16 %. Factors involved in death included old age, septicemia, respiratory failure, and late presentation.

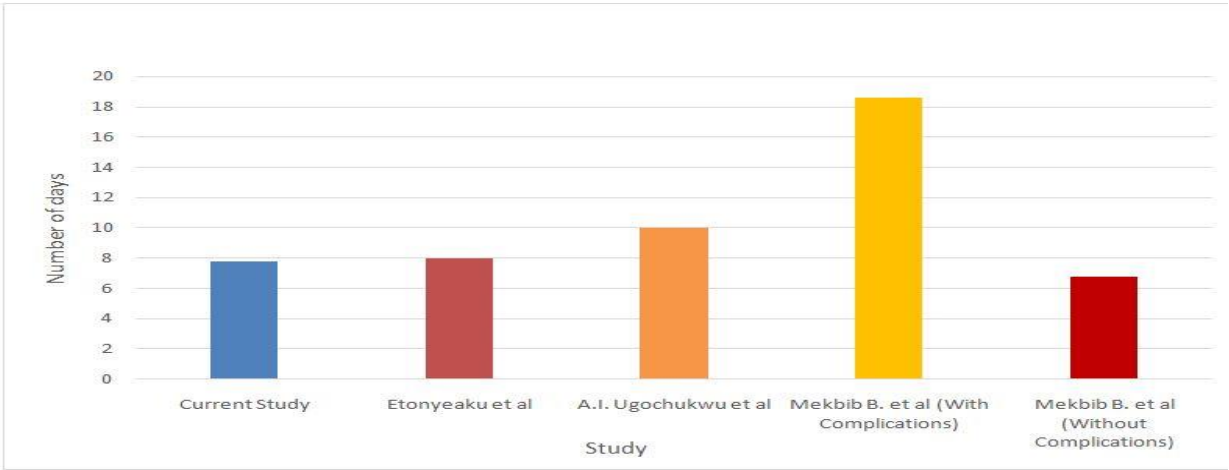

Fig 3:Post-operative Hospital Stay

Discussion

Males were affected more than female which is comparable to other studies i.e. Mekbib B. et al and R S Bali et al. [6,7] Previously, most patients were middle aged, with a ratio of 2:1 of male:female. With time there has been a steady increase in the age of the patients suffering this complication and an increase in the numbers of females, such that perforations now occur most commonly in elderly female patients.[5] Emergency surgery for perforated ulcer presently carries a mortality risk of up to 30% [2,11]. Within the past decade several retrospective and prospective studies have identified risk factors predictive of mortality including age, delay to surgery, shock on admission, low albumin concentration, concurrent medical illness, ulcer location, renal failure, liver cirrhosis, and immunosuppression. [2,11-19] Our study has observed that delayed presentation has significantly affected surgical outcomes as seen in John boey et al and Etonyeaku et al.[8,10] There is considerable postoperative morbidity which affects up to two-thirds of the patients and includes pneumonia, wound infection, and intraabdominal abscess. As surgery for perforated ulcers is performed frequently in the elderly, the postoperative course is usually complicated by morbidity directly associated with cardiovascular or metabolic illness [2,11, 20,21]. 44 % patients of this study had co-morbid illness which is comparable to the 38.5 % of R S Bali et al.[7] Young, healthy patients who are presenting early with perforation have an excellent prognosis, while older patients with comorbid conditions with neglected perforation have a poor prognosis.Amongst multiple risk factors,tobacco chewing carries highest number of patient (44%) in our study while Alcohol abuse carries highest number of patients in A.I.Ugochukwu et al (72.4%) and Mekbib B.et al (17.6%) as shown in table 3.[6,9]

Table 3:Risk factors

	Current study(25 patients)	Mekbib B. et al [06](136 patients)	Etonyeaku et al [10] (45 patients)	A.I.Ugochukwu et al [09] (76 patients)
Smoking	08 (32%)	16 (11.8%)	--	42 (55.3%)
History of NSAIDS	02 (8%)	02 (1.5%)	11 (24.4%)	07 (9.2%)
Alcohol Abuse	06 (24%)	24 (17.6%)	--	55 (72.4%)
Tobacco Chewing	11 (44%)	12 (8.8%)	--	--
Dyspepsia	07 (28%)	82 (60.3%)	17(37.8%)	24 (31.6%)

Table 4:Complications

	Current Study	John Boey et al [08]	Mekbib B. et al [06]	Etonyeaku et al [10]	A.I. Ugochukwu et al [09]	R S Bali et al [07]
Wound Infection	04 (16%)	13 (5.01%)	20 (27.4%)	08 (17.8%)	30 (39.5%)	125 (31.25%)
Wound Dehiscence	01 (04%)	03 (1.1%)	10 (13.7%)	--	04 (5.3%)	55 (13.7%)
Pneumonia	02 (08%)	10 (3.86%)	16 (21.9%)	01 (2.2%)	10 (13.2%)	60 (15%)
Respiratory failure	03 (12%)	13 (5.01%)	--	04 (8.9%)	06 (7.9%)	67 (16.7 %)
Intra-abdominal collection	02 (08%)	08 (3.08%)	12 (16.4%)	04 (8.9%)	7(9.2 %)	80 (20 %)
Cardiac Problems	02 (08%)	13 (5.01%)	--	--	--	--
Repair Site failure	02 (08%)	--	08 (10.9%)	01 (2.2%)	--	06 (1.5%)
Total patients	16	60	56	18	57	393

The overall complication rate in this series was 68% which is high as compare to other studies, 23 % in John Boey et al, 40 % in Etonyeaku et al because of people from low socio-economic strata with delayed presentation to the hospital, old age, co-morbid conditions. The complication rate in some western series is found to be higher than this (around 35% in a German study). This can be due to the fact that most western Perforated peptic ulcer patients were older, and definitive ulcer surgeries were done more frequently. In our study and the other African studies, none of the patients had definitive ulcer surgery.[22,23]Patient presenting within 24 hours of Symptom onset have less complications as compared to patients presenting after

24 hours. Similar studies done in Turkey, Singapore and Ivory Coast also showed presentation after 24 hours of the onset of symptoms increased both post-operative complications and mortality.[24,25]. In our study, 11 patients had < 5 mm size peptic perforation, 10 patients had 5mm to 10 mm size, 04 patients had >10 mm size perforation while in Mekbib B et al 88 (64.7%) of the perforations were ≤5 mm and 8(5.9%) were >10 mm, the rest 35 (25.7%) were between 5 and 10mm.[06] The amount of peritoneal fluid in our study was from 50 millilitres to 4000 millilitres while in Mekbib B. et al varied from 100 to 6000 millilitres. [6]

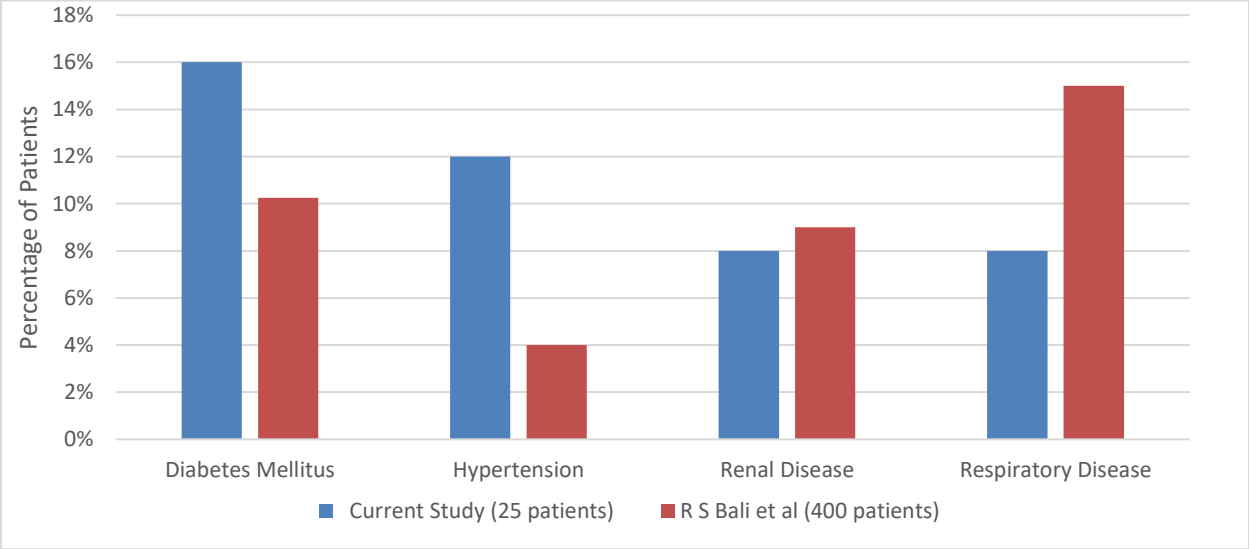

Fig 4: Co-morbid Illness

The mortality rate in our study was 16%, which is higher than other studies like R S Bali et al had 7%, 6.2 % in John Boey et al, 6.6 % in Mekbib et al due to delayed presentation, old age, complications.[6-8] In our study, 44 % had co-morbid illness while only 3.7% of the patients had a comorbid illness in Mekbib B. et al, 15 % in R S Bali et al.[6,7] Increased co-morbidity is due to old age, irregular medication in low socio-economic strata. Our study is retrospective study, all limitations of such type of study should be expected. Though the study did not seek for prevalence of Helicobacter pylori, it has been noted to be high amongst the low socio-economic group. No record was seen of attempts at Helicobacter pylori eradication therapy in our study. Our patients were mainly from the low socio-economic strata based on their occupation. Prognosis of perforated peptic ulcer disease is highly correlated with age, comorbid illness, and time of surgery. Therefore surgical treatment should not be delayed, and prognosis is affected primarily by comorbid conditions in the elderly.

Conclusion

Peptic Perforation in India has a different scenario as compared to the western countries. Early surgical treatment with adequate aggressive resuscitation and correction of electrolyte imbalances under the cover of broadspectrum antibiotics is must for excellent prognosis.

References

1. Scheeres DE, Dekryger LL, Dean RE. Surgical treatment of peptic ulcer disease before and after introduction of H_2-blockers. Am Surg .1987;7:392–395.
2. Svanes C.Trends in perforated peptic ulcer: incidence, etiology, treatment, and prognosis. World J Surg.2000; 24:277–283.
3. Taş İ, Ülger BV, Önder A, Kapan M, Bozdağ Z. Risk factors influencing morbidity and mortality in perforated peptic ulcer disease.Turkish Journal of Surgery/Ulusal cerrahidergisi. 2015;31(1):20.
4. Chung KT, Shelat VG. Perforated peptic ulceran update. World journal of gastrointestinal surgery. 2017; 9(1):1.
5. Bailey & Love's, SHORT PRACTICE of SURGERY 27th Edition, Chapter 63, pg no.1106-1142.
6. Henok Teshome, Mekbib Birega, Mekdim Taddese, Perforated Peptic Ulcer Disease in a

Tertiary Hospital, Addis Ababa,Ethiopia: Five Year Retrospective Study, Ethipian Journal of health Sciences, 2020;30(3):363-37.
7. Bali RS, Verma S, Agarwal PN, Singh R, Talwar N. Perforation peritonitis and the developing world. ISRN Surg.2014:105492.
8. J Boey, S K Choi, A Poon, T T Alagaratnam, Risk stratification in perforated duodenal ulcers. A prospective validation of predictive factors, Ann Surg 1987;205(1):22-6.
9. A.I. Ugochukwu,O.C. Amu,M.A. Nzegwu,U.C. Dilibe, Acute perforated peptic ulcer: On clinical experience in an urban tertiary hospital in south east Nigeria, International Journal of Surgery, 2013; 11: 223-227.
10. Etonyeaku AC, Agbakwuru EA, Akinkuolie AA, Omotola CA, Talabi AO, Onyia CU, KolawoleOA, Aladesuru OA, A review of the management of perforated duodenal ulcers at a tertiary hospital in south western Nigeria, African Health Sciences 2013; 13(4): 907 – 913.
11. Zittel TT, Jehle EC, Becker HD. Surgical management of peptic ulcer disease today – indication, technique and outcome. Langenbecks Arch Surg .2000;385:84–96.
12. Blomgren LGM.Perforated peptic ulcer: long-term results of simple closure in the elderly. World J Surg.1997; 21:412–415.
13. Hermannson M, von Holstein CS, Zillig T. Peptic ulcer perforation before and after the introduction of H2-receptor blockers and proton pump inhibitors. Scand J Gastroenterol .1997; 32:523–529.
14. Crofts TJ, Kenneth GM, Park MB, Stelle RJC, Chung SSC, Li AKC . A randomized trial of non-operative treatment for perforated duodenal ulcer. N Engl J Med .1989;320:970–97.
15. Svanes C, Lie RT, Svanes K, Lie SA, Soreide O Adverse effects of delayed treatment for perforated peptic ulcer. Ann Surg 1994;220:168–175.
16. Wakayama T, Ishizaki Y, Mitsusada M, Takahashi S, Wada T, Fukushima Y, Hattori H, Okuyama T, Funatsu H. Risk factors influencing shortterm results of gastroduodenal perforation. Surg Today.1994; 24:681–687.
17. Hermannson M, von Holstein CS, Zillig T Surgical approach and prognostic factors after peptic ulcer perforation. Eur J Surg . 1999; 165 :566–572.
18. Chou NH, Mok TK, Chang HT, Liu SI, Tsai CC, Wang BW, Chen IS. Risk factors of mortality in perforated peptic ulcer. Eur J Surg . 2000 ; 166 : 149–153.
19. Tsugawa K, Koyanogi N, Hashizume M, Tomikawa M, Akahoshi K, Ayukawa K, Wada H, Tanoue K, Sugimachi K. The therapeutic strategies in performing emergency surgery for gastro-duodenal ulcer perforation in 130 patients over 70 years of age. Hepatogastroenterology 2001; 48:156–162.
20. Bulut O, Rasmussen C, Fischer A. Acute surgical treatment of complicated peptic ulcer with special reference to the elderly. World J Surg 1996; 20:574–57.
21. Irvin TT .Mortality and perforated peptic ulcer: a case for risk stratification in elderly patients. Br J Surg.1989; 76:215–21.
22. Chalya PL, Mabula JB, Koy M, Mchembe MD, Jaka HM, Kabangila R, et al. Clinical profile and outcome of surgical treatment of perforated peptic ulcers in Northwestern Tanzania: A tertiary hospital experience. World Journal of Emergency Surgery. 2011;6(1):31.
23. Ansari MM, Akhtar A, Haleem S, Husain M, Kumar A. Is there a role of abdominal drainage in primarily repaired perforated peptic ulcers. J Exp Integr Med. 2012;2(1):47-54.
24. Bas G, Eryilmaz R, Okan I, Sahin M. Risk factors of morbidity and mortality in patients with perforated peptic ulcer. Acta Chirurgica Belgica. 2008 ;108(4):424-7.
25. Anbalakan K, Chua D, Pandya GJ, Shelat VG. Five-year experience in management of perforated peptic ulcer and validation of common mortality risk prediction models–are existing models sufficient?A retrospective cohort study. International Journal of Surgery.2015;14:38-44.

Conflict of Interest: Nil
Source of support:Nil