



Original Article

Spectrum of Surgical and Otorhinolaryngological Emergencies in a Teaching Hospital, Kalyan Karnataka Region-A Retrospective Study

H M Abhijith¹, Sapthami Satish², Dilsha P S³, Punith Kumar⁴, Gopal Vijaykumar Koalugi⁵, Khaled Abdul Rahaman Bakoban⁶

Corresponding Author:

H M Abhijith

Article History:

Received on: May 11, 2026

Revised on: May 20, 2026

Accepted on: June 15, 2026

Published on: June 30, 2026

¹ Senior Resident, Department of General Surgery, BMCH & RI Chitradurga, Karnataka, India.

² Assistant Professor, Department of ENT, BMCH and RI Chitradurga, Karnataka, India.

³ Senior Resident, Department of ENT, KolMS Kodagu, Karnataka, India.

⁴ Senior Resident, Department of General Surgery, AIIMS Mangala Giri, AP, India

⁵ ADMO/ General Surgeon, Central Hospital, South Eastern railways, Kolkata, WB, India

⁶ Senior Resident, Department of General Surgery, Owaisi Hospital and Research Center, Hyderabad, Telangana, India

ABSTRACT

Introduction and Method: Emergency surgery constitutes a substantial and growing burden in low- and middle-income countries, where over 60% of surgical interventions occur under emergency conditions. Despite this, dedicated Acute Surgical Unit (ASU) models remain uncommon in many Indian institutions, leaving surgical units to manage both elective and emergency caseloads simultaneously. This retrospective study analyzed emergency surgical cases performed by the Department of General Surgery and ENT at a teaching hospital in the Kalyan Karnataka region over a two-year period (December 2022–December 2024), using data drawn from operation theatre registers, to identify the most common emergency diagnoses and the hour of day at which such surgeries were performed.

Results: A total of 1,876 emergency cases were recorded, with a marked male predominance (64.7% vs. 35.3% female). Patients at the extremes of age—under 18 years and over 65 years—presented to the emergency room most frequently, a difference that was statistically significant. Acute appendicitis (including perforation and abscess) was the most common diagnosis overall and was especially prevalent among pediatric patients, followed by abscesses and open laparotomies. More than 40% of cases involved patients over 45 years of age, with high rates of comorbid diabetes (55%) and hypertension (57%). Most surgeries were performed between 4 PM and 9 PM, reflecting the absence of a dedicated emergency surgical team, while the fewest cases were operated between 3 AM and 9 AM, a period associated with surgeon fatigue and increased risk of error.

Conclusion: The findings indicate that appendectomy is the most frequently performed emergency procedure at this institution, and that current staffing patterns concentrate emergency operating during evening hours. The study concludes that establishing a dedicated Acute Surgical Unit could improve care for life-, limb-, and organ-threatening emergencies while reducing surgeon fatigue and associated errors, and the study also recommends implementation of such a unit, particularly given the region's high emergency surgical volume.

Keywords: Emergency surgery, Trauma, Amputation, Appendicitis, Burnout.

Citation: H M Abhijith *et al.* Spectrum of Surgical and Otorhinolaryngological Emergencies in a Teaching Hospital, Kalyan Karnataka Region-A Retrospective Study. *Biomedicine and Chemical Sciences*, 5 (2): 110-114, 2026

Copyright © 2026 | [Biomedicine and Chemical Sciences](#)



This is an Open Access article published under the Creative Commons Attribution 4.0 International (CC BY 4.0)

(<https://creativecommons.org/licenses/by/4.0>) Creative Commons Attribution (CC BY): lets others distribute and copy the article, to create extracts, abstracts, and other revised versions, adaptations or derivative works of or from an article (such as a translation), to include in a collective work (such as an anthology), to text or data mine the article, even for commercial purposes, as long as they credit the author(s), do not represent the author as endorsing their adaptation of the article, and do not modify the article in such a way as to damage the author's honour or reputation

INTRODUCTION

In the realm of low- and middle-income countries (LMICs), a substantial 60% or more of surgical interventions take place under emergency circumstances necessitating administration of life-saving treatments [1]. Delving into specifics, emergency general surgery (EGS) claims a notable share, representing 11% of hospital admissions [2]. The landscape is further nuanced by a paradigm shift prompted by the aging demographic. Surgeons now confront the task of operating on an increasingly elderly population. While conventional wisdom posited an elevated risk profile associated with advanced age, contemporary literature underscores the significance of frailty—a composite decline across multiple physiological systems—as a more accurate predictor of both mortality and morbidity, surpassing the predictive power of chronological age alone [3-5].

The health burden posed by conditions necessitating surgical intervention is formidable, especially when linked to immediate life- or limb-threatening circumstances that mandate prompt emergency surgery [6]. The financial void in LMIC becomes particularly critical for those requiring emergency surgery, where delays measured in minutes or hours carry profound implications for disability and survival [6,7]. The global demographic picture is changing dramatically due to an aging population and the fast urbanization of many LMICs, which adds to the complexity. The incidence of many illnesses is increased by this demographic shift, particularly the later stages of neoplasia and cardiovascular disease. To successfully address the emergent demands of people in need of emergency surgical intervention, general surgeons and health systems must adopt an adaptable strategy and resource allocation due to the dynamic nature of health crises [7].

Given the complexity of these issues, a deeper comprehension of the illness burden linked to surgical emergencies is crucial. Both the surgical and public health sectors benefit greatly from such insights, which promote a more strategic and customized approach. The current review of the literature aims to carefully outline the complex health burden and worldwide trends that define diseases requiring immediate surgical interventions [6, 7].

Emergency surgeries are recommended to be conducted during regular working hours unless there is a threat to life, limb, or organ [8-9]. Many countries use sophisticated Acute Surgical Unit (ASU) model, emphasizing its effectiveness in providing safe, effective, and accessible care to patients requiring emergency general surgeon (EGS) services [8-11]. Recent studies show there is increase in the burnout in the surgeons, which eventually leads to medical errors [12-14].

In recent years, there has been a global increase in the prevalence of diabetes and peripheral arterial disease (PAD), particularly in India. Patients with these conditions face an elevated risk of minor amputations [15]. Minor amputations increase the risk of subsequent major amputation, impacting mobility and quality of life [16].

OBJECTIVES OF THE STUDY

- a) To know the most common emergency cases operated in a teaching hospital of Kalyan Karnataka region.
- b) Most common hour of the day, the cases get operated.

METHODS

Source of data collection

Data is collected from the Operation Theater (OT) registers of Dept of General surgery and Department of ENT and HNS for 2 years in a Retrospective manner at Gulbarga institute of medical sciences, Kalaburagi. Data is being statistically analyzed from Dec 2022 to Dec 2024.

Inclusion criteria

- 1) Patients of all ages who underwent emergency surgery.
- 2) Surgeries taken up by Dept of General Surgery and ENT.
- 3) Done either as open or Laparo/ Endoscopic.

Exclusion criteria

- 4) Surgeries done by neurosurgery, orthopedics and other specialty departments.

METHODOLOGY

The emergency surgeries done in our institute during the 2-year time are collected and tabulated into different age groups, Diagnosis, type of surgery done and time slot of the surgery performed. Further results are derived.

Age of the patients is divided into different age groups i.e. <18 years, 19-25 years and so on till 65 years and > 65 years. Time of the surgeries are divided into four time slots, i.e. 3 am to 9 am, 9 am to 4 pm, 4 pm to 9 pm, 9 pm to 3 am. Time slots are divided as previously mentioned because, 9 am to 4 pm is the OPD hours and elective Surgeries will be scheduled at the same time. After that at 9 pm the shift of the nursing staff changes and hand over of the OT in charge are being done at that time.

RESULTS

After tabulating the statistical data, total cases operated on the emergency basis were 1876. Among 1876, 1214 (64.7%) were males and remaining 662 (35.3%) were females (Table 1).

Table 1: Gender distribution of study population.

Gender	Number of people (n)
Male	1214
Female	662

Patients are further divided on the basis of age groups to see which group of people come to Emergency Room (ER). We noticed extreme age groups i.e. <18 years (16.04%) and >65 years (16.90%) age group of people attend to the ER most often than other age groups. Making it statistically significant with p value of 0.0036 (<0.005) (Table 2).

Table 2: Age Distribution of study Population.

AGE GROUP	NO OF CASES	%	P value
<18 years	301	16.04	0.0036
19- 25 years	281	14.97	
26- 35 years	231	12.32	
36-45 years	257	13.68	
46- 55 years	263	14.04	
56-65 years	226	12.05	
>65 years	317	16.90	

It is seen that most of the cases presented and operated by General surgeons are for appendicitis (including appendicular perforation and appendicular abscess too) and seen mostly in pediatrics age group (<18 years). Next most common were abscess (perianal, submandibular, peri tonsillar, mastoid etc.) by both departments. Next common cases operated were Open laparotomy for various reasons like Gastro-Intestinal (GI) perforations, GI gangrene, Mesentric ischemia, Trauma, obstructed internal GI hernias, bowel obstructions, Peritonitis etc. But splenectomies are counted separately, as they are done secondary to trauma and entered separately in the operation theater (OT) registers. Other cases' frequency is mentioned in table 3.

Table 3: Type and Frequency of surgeries.

CASES	NO OF CASES	%
Appendectomy (open and Laparoscopic)	407	21.7
Incision and drainage for Abscess	364	19.4
Explorative open Laparotomy (various causes)	214	11.4
Fasciotomy and Debridement	381	20.3
Orchidectomy	103	5.5
Release of Obstruction and Herniorrhaphy (obstructed hernia)	60	3.2
Above knee amputation	73	3.9
Below knee amputation	32	1.71
Circumcision	6	0.3
Tracheostomy (Stridor, burns, cutthroat)	9	0.5
Ear pinna repair	36	1.9
Foreign body (in Ear, throat, nose)	30	1.6
Splenectomy	22	1.2
Collagen dressing	15	0.8
Disarticulation	124	6.59

Amongst the time slots, most of the cases are operated between 4 pm to 9 pm and least after 3am (table 4).

Table 4: Time slots of the emergency surgeries.

TIME SLOT	NO OF CASES	%	P value
3 am to 9 am	148	7.87	<0.0001
9 am to 4 pm	482	25.64	
4 pm to 9 pm	929	49.5	
9 pm to 3 am	317	16.9	

Table 5: Co morbidities distribution of study population.

CO MORBIDITIES	NO OF CASES	%
Hypertension	1069	57
Type II Diabetes Meletus	1032	55
Both (HTN and T2 DM)	900	48

DISCUSSION

In our study, after analyzing the results we came to know that most common disease burden requiring emergency surgery is acute abdomen with most common diagnosis of acute appendicitis and other causes of the acute abdomen are hollow viscous perforations and Gastro-Intestinal obstructions. Other than acute abdomen, other cases requiring emergency surgery are debridement, incision & drainage and disarticulations. Among the above cases, most common factors that we noticed are, >40% of the cases are >45 years of age and are either diabetic (55%) or hypertensive (57%) (table 5).

Most of the cases are operated between 4 pm to 9 pm. It is because, in a government set up like ours, there is no special team dedicated to emergency surgery. The allotted surgical unit is responsible for both the outpatient (9am-4pm) as well as emergency cases of that day. Emergency surgeries endangering limbs, organ or life are performed as and when the patient presents to the ER, which accounts to 25.64% in this study. Whereas the ones that need emergency surgery but have the luxury of time are allotted a slot with elective surgeries. The OT staff prepares the OR, linens, and equipment for the scheduled elective procedures the next morning, which is why 3 am was selected as the cutoff time. Emergency surgeries are recommended to be conducted during regular working hours. Studies, including those from Australia and New Zealand (ANZ), have observed a reduction in after-hours operations (between 24.00 and 08.00 hours) [8,9]. The Acute Surgical Unit (ASU) model emphasizes its effectiveness in providing safe, effective, and accessible care to patients requiring emergency general surgeon (EGS) services [8-10]. In our institute least number of cases were operated in between 3 am to 9 am because the operating surgeon will be exhausted and sleep deprived. The period of service for EGS should be defined, incorporating safe-hours principles to address fatigue-related concerns highlighted in simulator-based studies, which show fatigued surgeons make more errors and operate more slowly [10,11]. Burnout, linked to fatigue and lack of sleep, has been identified as a significant factor associated with major medical errors [12-14,17].

In recent years, there has been a global increase in the prevalence of diabetes and peripheral arterial disease (PAD), particularly in India. Patients with these conditions face an elevated risk of minor amputations, with an annual rate of 22.1 per 10,000 population with diabetes over the past 3 years. Minor amputations increase the risk of subsequent major amputation, impacting mobility and quality of life, with one in 10 patients experiencing an ipsilateral major amputation within the first year and half succumbing to mortality by 5 years [15,16]. Older age, long duration of diabetes, poor glycemic control, malnutrition, PAD, severe foot ulcers with infection, a history of prior amputation, foot gangrene, and a low ABI level are independent predictors of lower extremity amputation (LEA) in DFU patients [16]. Multidisciplinary intervention is essential to prevent amputation in diabetic patients with foot ulcers, considering DFU's global prevalence of approximately 6.3%. The rate of LEA in diabetes is over five times higher than in those without diabetes [15].

CONCLUSION

By our study we conclude that most common emergency cases operated are Appendectomy. Most of the cases were operated between 4pm to 9 pm due to work hour restrictions. We also concluded that having separate dedicated ASU will give better results in better care of emergency situations especially life-threatening, limb salvaging or organ saving situation and prevent the operating surgeons from fatigue and burnouts and less errors on operating table. We highly recommend having a separate ASU for the institute with high emergency input.

CONFLICT OF INTEREST: We declare there is no conflict of interest.

FUNDING: None

ETHICAL CLEARANCE: We declare that ethical committee approval is exempted for this study

REFERENCES

1. Debas HT, Donkor P, Gawande A, Jamison DT, Kruk ME, Mock CN, editors. Essential Surgery: Disease Control Priorities, Third Edition (Volume 1). Washington (DC): The International Bank for Reconstruction and Development

- / The World Bank; 2015 Apr 2. PMID: 26740991.
2. Ross SW, Reinke CE, Ingraham AM, Holena DN, Havens JM, Hemmila MR, Sakran JV, Staudenmayer KL, Napolitano LM, Coimbra R. Emergency General Surgery Quality Improvement: A Review of Recommended Structure and Key Issues. *J Am Coll Surg.* 2022 Feb 1;234(2):214-225. doi:10.1097/XCS.000000000000044. PMID: 35213443.
 3. Song X. Prevalence and 10-year outcomes of frailty in older adults in relation to deficit accumulation. *J Am Geriatr Soc.* 2010;58(4):681–7.
 4. Rockwood K, Howlett SE, MacKnight C, Beattie BL, Bergman H, Hebert R, et al. Prevalence, attributes, and outcomes of fitness and frailty in community-dwelling older adults: report from the Canadian study of health and aging. *J Gerontol A Biol Sci Med Sci.* 2004;59(12):1310–7.
 5. Tian BWCA, Stahel PF, Picetti E, Campanelli G, Di Saverio S, Moore E et al. Assessing and managing frailty in emergency laparotomy: a WSES position paper. *World J Emerg Surg.* 2023 Jun 24;18(1):38. doi:10.1186/s13017-023-00506-7. PMCID: PMC10290402.
 6. Lopez AD, Mathers CD. Measuring the global burden of disease and epidemiological transition: 2002-2030. *Ann Trop MED Paraditol* 2006; 100:481-499
 7. Stewart B, Khanduri P, McCord C, Ohene-Yeboah M, Uranues S, Vega Rivera F, Mock C. Global disease burden of conditions requiring emergency surgery. *Br J Surg.* 2014 Jan;101(1): e9-22. doi:10.1002/bjs.9329. PMID: 24272924.
 8. Parasy AD, Truskett PG, Bennett M, Lum S, Barry J, Haghighi K, Crowe PJ. Acute-care surgical service: a change in culture. *ANZ J Surg.* 2009 Jan-Feb;79(1-2):12-8. doi:10.1111/j.1445-2197.2008.04790.x. PMID: 19183372.
 9. Cox MR, Cook L, Dobson J, Lambrakis P, Ganesh S, Cregan P. Acute Surgical unit: a new model of care. *ANZ J. Surg.* 2010; 80: 419–24
 10. Gandy RC, Truskett PG, Wong SW, Smith S, Bennett MH, Parasy AD. Outcomes of appendectomy in an acute care surgery model. *Med. J. Aust.* 2010; 193: 281–4
 11. Ang ZH, Wong S, Truskett P. General surgeons Australia's 12-point plan for emergency general surgery. *ANZ Journal of Surgery.* 2019 Jul;89(7-8):809-14.
 12. Taffinder NJ, McManus IC, Gul Y, Russell RC, Darzi A. Effect of sleep deprivation on surgeons' dexterity on laparoscopy simulator. *Lancet* 1998; 352: 1191.
 13. Grantcharov TP, Bardram L, Funch-Jensen P, Rosenberg J. Laparoscopic performance after one night on call in a surgical department: prospective study. *BMJ* 2001; 323: 1222
 14. Shanafelt TD, Balch CM, Bechamps G et al. Burnout and medical errors among American surgeons. *Ann. Surg.* 2010; 251: 995–1000.
 15. Panagiota Birmipili, Qiuju Li, Amundeeep S Johal, Eleanor Atkins, Sam Waton, Ian Chetter et al. Outcomes after minor lower limb amputation for peripheral arterial disease and diabetes: population-based cohort study, *British Journal of Surgery*, Volume 110, Issue 8, August 2023, Pages 958–965, doi:10.1093/bjs/znad134
 16. Gong H, Ren Y, Li Z, Zha P, Bista R, Li Y, Chen D, Gao Y, Chen L, Ran X and Wang C (2023) Clinical characteristics and risk factors of lower extremity amputation in the diabetic inpatients with foot ulcers. *Front. Endocrinol.* 14:1144806. doi:10.3389/fendo.2023.1144806
 17. Farmer PE, KIM JY. Surgery and global health a view from beyond the OR. *World of Surg* 2008;32:533-536