

Original Article

# Rural General surgical care in a remote area of Nepal: Our experience at Karnali Academy of Health Sciences, Jumla

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## Abstract

**Background:** Karnali is one of the remote area of Nepal with just a 388,713 populations. The access to the hospital from the entire region is very challenging as not all the places have road access yet. Karnali Academy of Health Sciences which is located in Jumla district was established for the propose of providing health services in these areas plus four other district as well. It has provided various services including surgical services from the very beginning.

**Objective:** The objective of this study was to evaluate the general surgical cases in the resource limited as well as rural setting.

**Method:** A hospital based retrospective study was conducted among 640 patients with various surgical procedures performed. Data was collected entered in Microsoft excel and analysis was done with different headings.

**Results:** Of the total 640 patients comprised male 54.22% (n=374) and female 45.78% (n=266). Most of the cases were from 20-30 years with 23.33% (n=150) followed by 30-40 yrs 15.32% (n=98), then 10-20 yrs 14.06% (n=90) and so on with Elderly people >70yr comprised the lowest with 2.03% (n=13). The emergency procedure were 44.06% (n=282) and elective procedure 55.96% (n=358). Minor procedures consist of 40.47% (n=259) followed by intermediate 32.97% (n=211) and then major 26.56% (n=170). Out of the surgery Incision and Drainage performed for abscess (n=90) was the main emergency performed followed by appendectomy (n=78) then debridement (n=40), then exploratory laparotomy (n=30) and so on. Whereas perianal surgeries (n=60) were the most often performed elective surgeries followed by excision of soft tissue mass (n=50), vasectomy (n=42), repair of hernia (n=34), cholecystectomy (n=23) and so on.

**Conclusion:** The impact of the surgical care in rural medical centre (KAHS) is very obvious from the clinical audit including accessibility, sustainability and quality of care with surgical variation in such location.

**Key words:** Jumla, KAHS, remote area, surgical procedure.

## Introduction

The surgical diseases comprises about one third of the global disease burden but about five billion people cannot have timely and safe surgeries<sup>1,2</sup>. About 11% of death and disability worldwide are due to surgical cases. The patient in remote area do not obtain timely

surgical services and even the treatable conditions lead to significant mortality and morbidity.<sup>3</sup>

Despite being the largest zone, Karnali is one of the poorest and the most remote region of Nepal. Not all the places are accessible by road yet. The population

according to 2011 census is only 388,713. Karnali Academy of Health Sciences (KAHS) is situated in Jumla, which, apart from the 5 districts of Karnali also involve Jajarkot district from Bheri Zone; Bajura, Bajhang and Achham district from Seti Zone to provide health services. However most of the people coming to KAHS to seek health services are from Jumla, some part of Kalikot, Mugu, and very few from Humla. KAHS was established in 2011 and since then it has been providing various health services.

The aim of the study is to assess the various surgeries that had been carried out in the past two years in a newly established Tertiary care hospital in a remote area of Nepal.

## Method

This study was carried out in Karnali Academy of Health Sciences (KAHS), Jumla. This is a retrospective

study done from 14th April 2015 to 14th June 2017 from the record obtained from the operation theatre. The study included total of 640 cases. All patients of all ages belonging to both sexes, with the surgical procedure carried out during the study period were included in the study.

The record from the operation theatre was obtained and detailed retrograde study was performed in the patient who has undergone surgical procedures under department of General Surgery. Interim analysis of data was performed upon completion of the study. The data was entered into Microsoft Excel and Statistical Analysis was done with relevant statistical tests.

## Result

A total of 640 cases were included in the study. Total 54.22% (n=374) were male and 45.78% (n=266) were female.

**Figure 1:** Age distribution of the surgical patients.

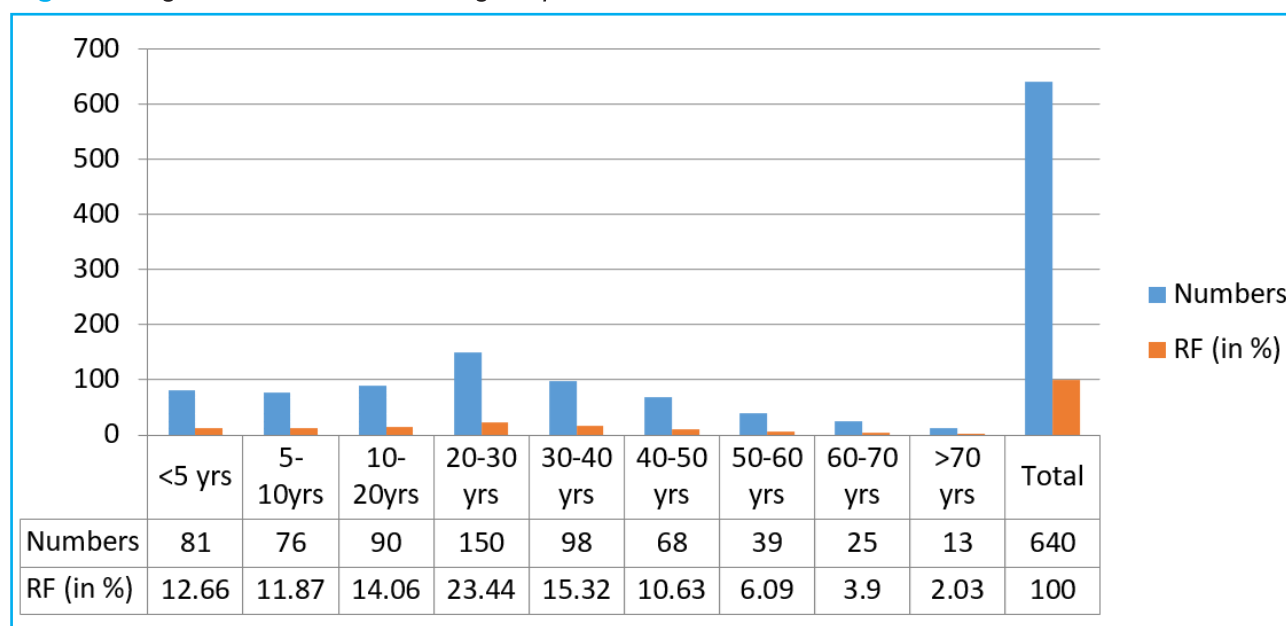


Figure 1 shows that maximum number of the patients are from 20-30 years followed by age groups 30-40 years, 10-20 years and so on. The least numbers are from the aged populations (70 yrs).

**Table 1:** Types of procedures conducted

Types of procedure	Total	RF (in %)
Emergencies	282	44.06
Elective	358	55.94
<b>Total</b>	<b>640</b>	<b>100</b>

Table 1 shows total emergencies conducted were 44.06% (n=282) and elective procedure 55.96% (n=358).

**Table 2:** Nature of procedures conducted

Nature of procedure	Total	RF (in %)
Minor	259	40.47
Intermediate	211	32.97
Major	170	26.56
<b>Total</b>	<b>640</b>	<b>100</b>

Table 2 shows most of the cases performed were minor procedures which consist of 40.47% (n=259) followed by intermediate and then major.

**Table 3:** Emergencies surgeries performed, n=282

Diagnosis	Procedure	Total
Abscess	Incision and Drainage	90
Acute appendicitis	Appendectomy including one laparoscopically removed	78
Wound, burn and soft tissue infections	Debridement	40
Obstruction, perforation	Exploratory Laparotomy	30
Traumatic injuries, wound	Suturing, reconstruction	22
Foreign body	Removal	14
Peripheral vascular disease	Amputation	4
Bullet injury	Exploration	2
Torsion of testis	Orchidectomy	2
<b>Total</b>		<b>282</b>

Incision and Drainage performed for abscess (n=90) was the main emergency performed followed by appendectomy (n=78) then debridement (n=40), then exploratory laparotomy (n=30) and so on (table 3).

**Table 4:** Elective surgeries performed, n=358

Diagnosis	Procedure	Total
Perianal disease	Perianal surgeries	60
Soft tissue mass	Excision	50
Complete family	Vasectomy	42
Adult hernia, pediatric hernia and hydrocele	Repair	34
Cholelithiasis	Cholecystectomy including seven laproscopic removal	23
Wound, burn and soft tissue infections	Debridement	22
Cervical lymphadenopathy	Biopsy	18
Rectal polyp	Polypectomy	16
Burn, necrotizing fasciitis	Skin graft and flap	15
Tongue tie	Release	15
Surgical incisions, wound	Secondary closure	14
Phimosis	Circumcision	12
Bladder stone	Cystolithotomy	8
Mucocele	Excision	8
Adult hydrocele	Eversion of sac	6
Umbilical granuloma	Cauterization	5
Burn contracture	Contracture release	3
Hydatid disease	Cystectomy with management of the cavity	2
Renal stone	Pyelolithotomy	1
Pyonephrosis	Nephrectomy	1
BEP	Retropubic prostatectomy	1
UDT	Orchidopexy	1
Choledocholithiasis	CBD exploration	1
<b>Total</b>		<b>358</b>

Perianal surgeries (n=60) were the most often performed elective surgeries followed by excision of soft tissue mass (n=50), vasectomy (n=42), repair of hernia (n=34), cholecystectomy (n=23) and so on (table 4)

## Discussion

Health services in remote area in a developing country like Nepal are a great challenge. The follow up in rural settings of Nepal is even more disaster because of the lack of good transportation facility and patients has to travel a long way before they reach Hospital<sup>4</sup>. Other challenges like manpower, electricity and water also pose a unique problem<sup>5</sup>. A huge worldwide scale up surgical capacity is needed to fulfill this gap in the accessibility of surgery<sup>6-8</sup>.

It has been a great challenge for the surgeons to perform various surgeries in a newly established Hospital in a very remote area of Nepal, with very little support mainly from the electricity and water supply. In spite of all these adversaries, 640 surgeries were performed during past two year's period.

In our study of the total 640 patients more were male comprising 54.22% (n=374) and 45.78% (n=266) were female. Most of the cases were from 20-30 years with 23.33% (n=150) followed by 30-40 years 15.32% (n=98), then 10-20 yrs 14.06% (n=90) and so on. Elderly people >70yr comprised the lowest with 2.03% (n=13).

While categorizing based on emergency and elective procedure, the emergency procedure comprised were 44.06% (n=282) and elective procedure 55.96% (n=358). Minor procedures consist of 40.47% (n=259) followed by intermediate 32.97% (n=211) and then major 26.56% (n=170).

Out of the surgery Incision and Drainage performed for abscess (n=90) was the main emergency performed followed by appendectomy (n=78) then debridement (n=40), then exploratory laparotomy (n=30) and so on. Whereas perianal surgeries (n=60) were the most often performed elective surgeries followed by excision of soft tissue mass (n=50), vasectomy (n=42), repair of hernia (n=34), cholecystectomy (n=23) and so on. Apart from these we also performed

few surgeries like Hydatid cyst of live excision (n=2), and each one of Nephrectomy, pyelolithotomy, CBD exploration and retropubic prostatectomy.

## Conclusion

The geographical situation, limited resources and the budgetary facilities greatly affect the surgical cases in a rural setting of a remote place of a developing nation. This study also shows the various general surgical cases distribution in such setting.

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