

## An Experience in Setting Laparoscopic Surgery at Community Health Centre Level: A Small Step Towards MAS for Masses

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### Abstract

**Background:** Minimal access surgery (MAS) are revolutionary in the surgical domain. Setting a laparoscopic facility in a CHC (Community Health Centre) from the scratch with minimal infrastructure and well trained staff was challenging. Laparoscopic surgery has become the standard treatment modality for many conditions like gall stone diseases and recurrent appendicitis. But still in India laparoscopic procedure are not routinely carried out in rural setup.

**Aims and Objectives:** Awareness among rural people regarding the new modalities of treatment over conventional one.

**Materials and Method:** A retrospective study was conducted in a CHC, of a village in Odisha. 36 patients undergoing laparoscopic surgery of which 22 underwent laparoscopic cholecystectomy and 14 underwent laparoscopic appendectomy for gallstone disease and recurrent appendicitis respectively. The preoperative, intra operative, postoperative findings were noted and assessed. Patients are followed up for a period 6 months.

**Results:** MAS is better in terms of analgesic requirement, postoperative hospital stay, SSI with better cosmetics and duration of surgery. It can be a cost effective alternative.

**Conclusion:** In rural India, patients have to borrow money or sell their assets to have treatment, and three fourths of them are impoverished by it. The advantages, such as less pain, quick recovery, short hospital stay and less blood loss make minimally invasive surgeries like laparoscopic surgeries the ideal solution for patients in remote rural areas. However challenges like inadequate skilled staff, limited resources makes MAS out of reach from many villages.

**Keywords:** Minimal, Laparoscopy, cholecystectomy, appendectomy.

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### Introduction

Minimal access surgery (MAS) is a revolutionary in the field of medical science. Setting a laparoscopic facility in a community health centre (CHC) from the scratch with minimal infrastructure and borderline skill was challenging and toilsome. In the past few decades, there has been arising trend for laparoscopy surgery and is substantially regarded as the first choice in most of the surgical interventions by adequately trained surgeons. In the context of India, it is still not routinely carried out in rural setup frequently. In the present scenario, the most commonly performed laparoscopic surgeries in our country are laparoscopic cholecystectomy and laparoscopic appendectomy. These two procedures are considered as the beginner's option at the outset. The significant advantages to minimal access surgery includes cosmetically satisfactory with minimal scarring, less postoperative pain; reduced duration of hospital stay and early resumption of routine life.

[1, 2]. The primary aim of the study was to create awareness among people from rural areas regarding the new modalities of treatment over the conventional one and emphasizing on cost benefit aspect and its impact on economical aspect of the rural government hospital as well as the patient's. The current study, divulges our experience in conducting laparoscopic procedures at the grass root level of healthcare centre and the challenges encountered and overcame.

### Materials and Methods

The study was conducted at a community health centre of a rural area, where two basic laparoscopic surgical procedures formed i.e. laparoscopic cholecystectomy and laparoscopic appendectomy.

**Study Design:** This study was a retrospective observational study for a period of 1 yr. 36 number of cases were taken into account and categorised as

Group 1- lap cholecystectomy

Group 2- lap appendectomy

Basic laparoscopic instrument and machine set up was done after consulting with the higher authority. Workshop, training and sensitisation programme organised for the OT staff, nurses and technician. The patient and his attendants were explained regarding the risk and benefits of the procedure and chances of converting into open surgery.

#### Inclusion Criteria

- Age -20-60yrs
- Chronic calculus cholecystitis
- Recurrent appendicitis
- GB polyp > 1cm

#### Exclusion Criteria

- Acute attack
- Previous abdominal surgery
- Patient with co morbidities
- Complicated cases like gangrenous GB, empyema ,perforated GB, appendicular lump , abscess

Patients were selected after proper clinical examination and ultrasonography of abdomen and pelvis. Preoperative intra operative and post operative findings were noted and assessed using a secured database.

#### Results

Out of 36 patients, 22 patients underwent laparoscopic cholecystectomy (LC) and 14 patients underwent laparoscopic appendectomy (LA).

**Table 1: Sex distribution**

	Male	Female
Lap chole	7	15
Lap appendix	8	6

Out of 22 patients planned for lap cholecystectomy, 15 (68.2%) were female and rest 7 (31.8%) were male which was statistically significant. Among 14 laparoscopic appendectomy patients 8 were male and 6 were female.

**Table 2: Age distribution**

AGE (in yrs)	Lap chole	Lap appendix
18-30	2	7
30-40	8	4
40-50	9	2
50-60	3	1

In the study, around 77% patients who underwent lap cholecystectomy fall in the age group of 30- 50 yrs. Similarly 50% patients were in the age group of 18-30 yrs who undergone laparoscopic appendectomy.

**Table 3: Outcomes of both the procedure**

Procedures	LC	LA
No. of cases	22	14
Conversion	5	2
Mean operating time (min)	43.6	34.7
Hospital stay(days)	3	2

Among both procedures, laparoscopic cholecystectomy was the commonest to be performed. The conversion to open surgery was found to be more from lap cholecystectomy which was not significant statistically. The mean operating time for LC was 43.6 min and for LA was 34.7 min. The average duration of hospital stay was almost same and minimal in our study

**Table 4: Major complications**

Complications	No. of cases
Haemorrhage	5
Bowel injury	1
CBD injury	2
Slippage of clip / ligature of the stump	0
SSI	2
Port site hernia	0

The most common complication encountered during the surgery was secondary haemorrhage. Other complications were not significant and none of the patients had slippage of clip from cystic duct or slippage of roeder's knot and port site hernia.

#### Discussions

In the last decade laparoscopic surgeries have taken an edge over the open surgical procedures in our country and availing it among the rural population in the fragmentary setup was challenging.

As per the demographic distribution of the study, female and age group of 30-50 yrs were found to have more gall stone disease for which laparoscopic cholecystectomy was planned. Though, there was no significant relationship established for gender in case of appendicitis but more cases were operated in the age group of 18-30 yrs. Chang, et al showed that the duration of the surgery correlated inversely with the experience of the surgeon. [3] The rate of conversion was more for laparoscopic cholecystectomy due to frozen calots, adhesion unavailability of advanced instruments. Commonly encountered complications were haemorrhage and CBD injury, as there was inadequacy of advanced technologies to haemostat and identification of structures. Also experience of the surgeon along with efficient assistants matters a lot.

The following challenges were experienced while setting up minimal invasive surgery in the CHC. Infrastructure insufficiency along with lack of well-equipped and trained nurses and technicians was the major concern. It was difficult to bring permission from government for setting MIS centre in a CHC. No anaesthetists were posted in PHC. In case any intra operative or post-operative complications, backup preparedness was there to transfer to nearby tertiary centre. Post operative monitoring with minimal doctors was burdensome. Last but most importantly gaining faith of the localites and bringing near to their door , the minimal invasive surgery with acceptance and breaking the per operative stigmata.

Laparoscopic surgery is limited by its long learning curve and it is technically demanding. [4] Minimally access surgery (MAS) has been shown to reduce postoperative pain and length of hospital stay, provide faster recovery and shown to be cost-effective in comparison to open surgery. Laparoscopic surgery requires a high degree of special resolution, dexterity, and technical skills. An initial training period is usually required for the majority of surgeons to become proficient in these complex procedures by continuous repetition of these tasks. As a result, one would anticipate that to become technically proficient may require a longer training period and better to start your practice with simpler procedures such as cholecystectomy and appendectomy. [5]

The above illustration suggests that lack of equipment and costs should no longer be accepted as limitation to patients having access to minimally

invasive surgery. Various adaptations can decrease costs and surmount barriers allowing for more widespread acceptance of laparoscopic surgery in low-income settings including team work, sourcing of donated equipment, training of theatre and support staff, encouraging local universities to incorporate laparoscopic surgery in their postgraduate teaching curriculums, developing safe clinical guidelines, and the use of reusable instruments. [6,7]

### Conclusion

In rural area, most of the surgical patients have to borrow money or sell their assets to avail a tertiary centre for treatment, and three fourth of them are impoverished by it. By setting MAS for the masses in the CHC has broken the barrier of doctor and patient's communication and availability of advanced surgery at their doorstep with health and economical sustainability. However challenges like inadequate skilled staff, limited resources make MIS out of reach from many villages, where teamwork plays a pivotal role. The advantages, such as minimal pain, quick recovery, and short hospital stay, less blood loss has made minimal access surgeries, an ideal solution for patients in remote areas.

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