

# MYTHS AND REALITIES OF RURAL LAPAROSCOPIC SURGERY: FIVE YEAR EXPERIENCE - EXCLUSIVE USE OF THE AIR AS INSUFFLATING MATERIAL UNDER REGIONAL AND LOCAL ANESTHESIA

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**Abstract:** Due to paucity of resources, practice of surgery is a challenge in remote rural areas of India. In last five years 746 laparoscopic operations were performed at our clinic in a remote rural village of Distt Kullu H.P India. Due to deep rooted myths in rural population initial acceptance was very poor. Non availability of gases like Oxygen, Carbon-dioxide and nitrous oxide forced us to work with use of atmospheric air as insufflating agent. Procedures had to be performed under local and regional anaesthesia keeping insufflating pressure at 12-14 mm Hg with appropriate patient monitoring. There was no serious complication. Only 31 cases out of 746 were converted due to various problems. I present my experience of laparoscopic surgery in a rural setting without any back up resources being available.

## INTRODUCTION

Eighty percent of Indian population lives in rural area and 80% of rural population is poor. Conditions of health care facilities are very poor in small towns and villages of India. More than 85% of surgeons are working in big town and metro-cities. So far the rural population access to modern health care facilities is very poor, because of lack of basic infrastructure and poor economic condition.

## MATERIAL AND METHODS

I started my practice in the year 2002 in a small village of Distt. Kullu (H.P.)- INDIA. During my practice I faced many problems, some of which are common with any other surgeon and faced now and then during practice. But some problems were entirely due to rural setup. The problems I faced were due to lack of man power, trained staff, professional help for emergency backup, lack of drugs and their inability in local markets.

Carbon dioxide, Nitrous oxide and Oxygen were not easily available and had to be brought up from a distance of 300 KM. Because of all this I had to work with exclusive use of atmosphere air as insufflating material, and under regional (subarachnoidal and epidural) and local anesthesia.

## RESULTS

During period (Jan.2002 to Feb.2007)

The laproscopic surgeries were performed

- Cholecystectomy 155
- Appendicectomy 85
- Adhesiolysis 30
- Diagnostic 100
- Ascites Drainage 100
- Hydatid Cyst Liver 100
- Blunt Abdominal Trauma 10
- Perforations 5

- Ectopic 20
- Gynae-Procedures 70
- Liver abscess 20
- PID 20
- Infertility 20
- Malignancy (Biopsy) 11

## Complications and difficulties

Initial acceptance was very poor due to deep rooted myths in general population. Proper preoperative counselling about laparoscopic surgery, was done explaining in detail about likely complications (Table) and need for conversion.

Tables 1 Complications of lap. surgeries in rural set up

Name	Cases	Remarks
Air Embolism	Nil	
Needle & Trocar injuries	Nil	
Thermal injuries	Nil	
Hemorrhages	23	Five cases opened control bleeding.
CBD injuries	Nil	
Biliary leakage	05	Diagnosed by presence of bile in drain, exploration Done there was slip of clip From cystic duct.
Postoperative right shoulder pain and Discomfort due to residual subphrenic air	18	Can be minimized by complete evacuation of Air after procedure.

**Conversions :** Total of 31 Cases were converted; most cases were converted due to difficult cholecystectomies; case were converted to control bleeding.

**Pneumoperitoneum :** Due to non availability of carbon dioxide, cylinder had to be refilled from a distance of 300 kms at Roper Punjab. Carbon-dioxide itself has its own disadvantages like hypercarbia, acidosis and cardio respiratory problems. So I started working with air as insufflating material. We used Alfa *air insufflators* calibrated

for various pressures and flow rates. It provides insufflation pressure up to 25 mm Hg. The risk of air-embolism was reduced by working at low pressure on 12-14 mm Hg and meticulous common place technique. Meticulous homeostasis was achieved during dissection so that no venules are left open for air-embolism. There had been no explosion and fire injury during use of electrocautery. The only disadvantage of air is the discomfort produced by residual subphrenic air, as air is absorbed very slowly. This can be minimized by complete evacuation of air at the end of procedure.

#### **Anesthesia**

We used local anesthesia for small procedures like lap-biopsy, diagnostic lap, ascites drainage and chromotubation. For upper abdominal surgery epidural anesthesia was used and lower abdominal procedures were carried out under subarachnoidal anesthesia. This was done to avoid the complications of general anesthesia reduce the cost of anesthesia, as spinal anesthesia is much cheaper as compared to GA. There have been no cardio respiratory problems at insufflations pressure of 12-14 mm Hg, under spinal anesthesia.

### **DISCUSSION AND CONCLUSIONS**

In rural areas the surgeon has to live up to the popular acceptance of patients, However there are deep rooted myths which are to be addressed. The *myths* are:- (a) gas is filled in abdomen during surgery and patient suffers life long with "GASTIC". (b) it is not possible to remove specimen through the small hole. (c) laparoscopic surgery is incomplete. (d) it is a "current" operation. (e) it is a costly operation.

The most important point in the regard is excellent communication skills and explanation of procedure in detail, with emphasis on laparoscopic surgery to the patient and likely need for conversion in case of any complication. He must build on an excellent rapport, and take responsibility of training of staff in operative steps and handling of costly equipments. He should also develop excellent report with other professional colleagues for back up.

The complications in relation to needle and trocar placement can be prevented by proper techniques and following basic principles of laparoscopic surgery.

Procedure-related complications can be avoided by adhering to basic principles and meticulous dissection and setting danger limits. Every possible complication should be kept in mind and should be detected during procedure at the earliest as we do not have access to CT and ERCP.

Reopening and referral to higher centers makes a surgeon and the procedure very unpopular. It can tarnish his image and career to no ends. This is more evident in rural areas. Complications related to pneumoperitoneum can be tackled by proper monitoring. With proper monitoring, use of proper technique, appropriate pressure, and complete homeostasis there is no chance of air embolism with the use of atmospheric air as insufflating material. There is practically no chance of explosion and fire injury with the use of air with electrocautery. Cost of surgery is also reduced with use of air. Complications related to GA are also reduced with use of spinal and local anesthesia and there is further reduction of cost. But strict patient monitoring and pre-operative fluid loading is must. There must be arrangement of GA and endotracheal intubations in case of any unexpected complication. There should be arrangement of inverter/generator in hospital as power failure is very frequent in rural areas. Surgeon has to keep himself updated about latest technologies. He must get himself trained by attending CME programmes and workshops and should do ethical surgery. He has to develop excellent communication skills and must display excellent PR skills to convince the patient that he has their best interest at heart. He must be meticulous to minimize complication. He needs to be an excellent teacher to his staff and a faithful healer to people.

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