

Experience Of Thoracic Surgery Performed Under Difficult Conditions in Somalia.

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Objective: To review the outcome of thoracic surgery performed at Medina Hospital over last two years under situations of constraints and to assess its feasibility in such conditions.

Design And Settings: Case series study in Medina Hospital, Mogadishu - Somalia.

Subject and Methods. Thoracotomies were performed in thirty-two patients with traumatic and non-traumatic conditions. No proper pre-operative investigations were available such as spirometry, haemogasanalysis, bronchoscopy and CT scan. We relied only on clinical evaluation and plain x-rays. Operations were performed under general anaesthesia with no inhalation substance; no anaesthetic machine was used. We simply used ketamine, Suxamethonium, Diazepam and Atropine.

We did not use post-operative suction drainage but simple "under water seal" bottle drainage.

Results: Thoracic surgery was performed in 32 patients in Medina Hospital. Most of these cases underwent pleural decortications for chronic empyema (18 patients), 7 patients had removal of bronchial foreign bodies, 4 patients had resection of oesophageal cancer, 2 patients had pericardiectomy for constrictive pericarditis and 1 had lobectomy for lobar consolidation. We had two post-operative complications and 2 patients died after having surgery for carcinoma of the oesophagus.

Conclusion: Thoracic surgery can be performed under constrains with good results in skilled and experienced hands.

Introduction

Thoracic surgery is usually performed in tertiary hospitals where equipment and well-trained personnel are available. Medina Hospital was a Police Hospital in South Mogadishu, Somalia. It had been closed in 1991 after the civil war broke out in the country. In 2000 it was reopened as a community based hospital with the support of the International Committee of the Red Cross (ICRC). Admission criteria were any surgical emergency with priority to war wounded patients.

Frequent lack of water and electricity, shortage of drugs and dressing materials, lack of diagnostic equipments and proper post-operative environment, have been usual constraints. This was particularly true for the thoracic surgery due to the lack of proper preoperative investigations (spirometry, bronchoscopy, haemogasanalysis, oesophago-gastroscopy, CT scan), suitable tracheal tubes (Carlens, Robertshaw), ventilators, negative pressure drains^{1,2}.

Patients And Methods:

This was a case series study based on a review of the patients' medical files during the period June 2000 (hospital opening) - September 2003.

Thoracotomy was performed in 32 patients in traumatic and non-traumatic cases. Pre-operative investigations, usually considered essential, like spirometry, haemogasanalysis, bronchoscopy, esophago-gastroscopy and CT SCAN were not available in our settings. We could only rely on medical history, clinical evaluation and AP-LL x-rays, to diagnose the thoracic problem, decide the proper therapeutic approach and extrapolate the residual respiratory function in case of lung resection. In case of doubt of oesophageal involvement, patients were also submitted to barium swallow and meal (to confirm the diagnostic doubt) and barium enema (to be ready for colon replacement in case we had to resect the oesophagus).

Prior to surgery patients were also submitted to basic laboratory investigations (haemogram, blood grouping and cross-matching, glycaemia, liver and kidney function) and ECG. After resection, diagnosis could be confirmed by histopathology where needed.

The 18 cases presenting with empyema were first treated conservatively with chest tube drainage for 4 weeks prior to consider major chest surgery.

Operations were performed with the patient lying in a lateral position (postero-lateral approach thoracotomy) in 30 cases, and supine position (median sternotomy approach) in 2 cases. General anaesthesia with Ketamine and Diazepam and a pre-medication with Atropine were always used. Myorelaxation was obtained with Suxamethonium and followed by simple oro-tracheal intubation with single lumen tube. No double lumen tubes such as Robertshaw or Carlens were available. Due to lack of mechanical ventilators, patients were manually ventilated with an Ambu bag connected with an oxygen concentrator. To avoid microatelectasia, during the operation, the involved lung was expanded from time-to-time. A pulse-oxymeter was connected to each patient to monitor blood oxygen saturation.

On the surgical instruments point of view we could rely on a standard thoracic set with Finocchietto retractor, lung retractor, rib cutter and Lubsche sternotome.

After completing the operation, proper haemostasis was obtained and the pleural cavity was irrigated with warm physiologic solution. Two chest tubes (size 36F and 28F) were applied and connected with "under water sealed" bottle drainage. No suction drainage was available in our hospital.

Blood was made available before operation. For safe blood transfusion, donors were tested for Hepatitis B and C, syphilis, malaria and HIV.

From the 1st post-operative day onward all patients had respiratory physiotherapy, mobilization and liquid and semi-liquid diet (with the exception of the oesophageal cases).

Benzyl Penicillin 5mega 6 hourly, Gentamycine 80mg 8 hourly and Metronidazole 500mg 8 hourly IV were administered starting from anaesthesia induction, for 5 days. IV fluids were carefully administered to keep the patient "dry".

Eighteen patients presenting with chronic empyema underwent pleural decortication. Eleven of them had post-tuberculosis empyema and 7 cases were post-traumatic ones. None of them had lung resection as we could obtain complete lung expansion.

Among the seven patients with foreign bodies, 2 had left thoracotomy and 5 to right thoracotomy. One patient underwent a lobectomy of the right upper lobe, for an aspergilloma developed inside a TB cavity (histopathology confirmation), which was causing repeated episodes of haemoptysis. Two patients underwent pericardiectomy for constrictive pericarditis through a median sternotomy access. Four patients with carcinoma of the lower oesophagus underwent a resection and tubularized stomach reconstruction through a left postero-lateral approach.

Results

Thoracic surgery has been performed in 32 patients in Medina Hospital, Mogadishu, Somalia.

Thirty patients have been submitted to thoracotomy though a postero-lateral approach followed by pleural decortication in 18 cases, removal of bronchial foreign body in 7 cases, lobectomy in 1 case, oesophageal resection in 4 cases. Two cases underwent a midline sternotomy for pericardiectomy.

Duration of the operations ranged from 1.5 to 4 hours, with a mean time of 2 hours 45 minutes. An average of 4 units of blood per patient was transfused during the surgical procedure.

Complications

Two patients out of the 18, who underwent pleural decortication for empyema, had a post-operative empyema that subsided after 10 and 14 days respectively. Two patients, who had oesophageal resection for cancer, died after developing a mediastinal fistula.

Discussion

After an initial scepticism in performing thoracic surgery, well aware of the difficulties and complications accompanying such procedures, we decided to cautiously start to do this kind of surgery. On one side we were facing inadequate preoperative investigations, anaesthesia and post-operative care level and, on the other side, a skilled thoracic surgeon was available and there was no possibility to send these patients abroad for treatment.

The suffering of our patients encouraged us to take the challenge and put together our experiences and skills with an outcome not far away from the results of a traditional well-equipped tertiary hospital around the world. We think that, in our case, an accurate

clinical evaluation of the patient combined with a careful assessment of the risks and benefits of such an operation in skilled hands, played a major role in the outcome obtained.

As mentioned above, the patients with chronic empyema had been first treated with a standard conservative method for 4 weeks³. The 18 submitted to pleural decortication were chosen from a larger group as not accepting the less aggressive alternatives (long standing chest drains, pleural fenestration) and being in good fitness.

The patient with pulmonary aspergilloma developed inside a TB cavity, had already had several episodes of haemoptysis and had no therapeutical alternative to lobectomy⁴. The four patients with oesophageal cancer had been selected for standard resection and reconstruction^{5,6} after counselling with the specialist and refusal of a simple feeding gastrostomy.

Conclusions

Due to the small number of cases presented in our study and the many variables included, the results obtained cannot be generalized. The outcome of thoracic surgery performed at Medina Hospital with the poor means available could, anyway, encourage other experienced surgeons to treat locally these cases when there's no possibility of transferring the patient to proper medical facilities.

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