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Original Research Article

Is it possible to alleviate thoracic surgery? chest tube removal before the extubation

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ABSTRACT

Background: The ambulatory surgery (AS), is an operative management that does not require an overnight hospital stay. But, the application of AS still limited in the thoracic surgery due to the necessity of air leaking management. The aim of this study is to review our AS institutional experience by a chest drain removal before the extubation, in thoracic sympathectomy surgery.
Methods: We have carried out a retrospective analysis of patients who underwent thoracic sympathectomy between November 2012 and July 2016 in the Thoracic Surgery Department of Abderrahmen MAMI University Hospital.
Results: During the study period, 17 patients underwent thoracic bilateral sympathectomy. Twelve (12) females were operated versus 5 males. The mean age was 24.47 (range:17-33) years. There is no chest X-ray disorder detected during all frame times. No patient had developed a respiratory distress during the postoperative period. In addition to that, no postoperative morbidities had been detected during the follow up. All patients were satisfied about the procedure at the end of the follow up.
Conclusions: The ambulatory thoracic surgery procedures can safely, and efficiency be applied if the patient is well selected. The progression on operative mini invasive techniques will increase the number of patients who can profit from an "alleviated thoracic surgery".

Keywords: Ambulatory surgery, Thoracic sympathectomy, Video thoracic surgery

INTRODUCTION

The ambulatory surgery (AS), or outpatient surgery is an operative management that does not require an overnight hospital stay.[1] Also called outpatient surgery, it became a better alternative to conventional hospitalization with the greatest growth without forgetting economical benefit.[2]

AS is actually a topic and a rapid progression field in many specialties being used frequently for various diagnostic and therapeutic procedures.[3] But, the application of AS still limited in the thoracic surgery due to the necessity of air leaking management as a postoperative complication. Only few studies have been reported on this topic. In fact, there is still great potential for an increase in ambulatory thoracic surgery.[2] Video-assisted mediastinoscopy, lung biopsy and bilateral sympathectomy are the main operations that have been included safely in outpatient thoracic surgical programmes.[4,5]

Thoracic surgeons are always trying to fast track increasingly complex procedures with good patient selection and also operation selection (selecting operation that can be performed safely and effectively in day surgery units).[5-7]

The aim of this study is to review our AS institutional experience by a chest drain removal before the extubation, in thoracic sympathectomy surgery.

METHODS

Author have carried out a retrospective analysis of patients who underwent thoracic sympathectomy between November 2012 and July 2016 in the Thoracic Surgery Department of Abderrahmen MAMI University Hospital.

Requirement

Author were included all patients, who had a palmo-plantar or axillary hyperhidrosis (both types confused) very inconvenient and not responding to medical treatment. All these patients underwent bilateral thoracic sympathectomy from T2 to T4 throw a video thoracic surgery (VTS).

In addition to that, only ASA I score patients with no medical or surgical antecedent were accepted after their consent. We have excluded patients with ASA score different to I, with medical or surgical antecedents and who needed a pneumolysis during the surgery.

Procedure and follow-up

Patients underwent bilateral thoracic sympathectomy under general anesthesia. We had started by the right side then the left one. The used surgical approach was a biportal VTS for each side (10.5 mm trocar for optic and 5.5mm for instruments). The used technique of sympathectomy was the electrocoagulation. We had placed one chest tube for each side connected to an aspiration system.

After the end of the surgery, a chest X-ray was performed in the operating room to verify the absence of pneumothorax or a fail of lung re-expansion for both sides. The chest tube removal was performed just before the patient awakens in the operating room starting with the right side: the anesthetist had made a manual bypass then the chest tube was removed by the surgeon under a lung hyperinflation.

All patients were discharged at the 6th hour after the extubation, before a medical control by an anesthetist doctor and a chest X-ray performed at the same hour. The follow-up started by a call phone at the 10th hour to verify the absence of any respiratory distress. Then, patients were re-controlled in day 10 and day 30 at the external consultation with a chest X-ray.

Eligibility of the procedure

The eligibility of this ambulatory surgery for hyperhidrosis was based on:

- A very limited risk of surgery to be followed by a complication
- All operated patients were living in a perimeter under 10 km from the hospital with an available and an accessible mean of transport if an immediate access to the emergency room was needed
- We noted at least 3 phone numbers for each patient to avoid losing his contact after discharge
- The surgeons were available during the first day of the surgery
- The patient can refuse to be discharged at the same day if he wasn't convinced.

Collected data

The following parameters were recorded: 1) Age; 2) Gender; 3) Chest X-ray disorder: the time frame was: before the extubation, before the discharge, at day 10 and at day 30; 4) respiratory distress: the time frame was: after the extubation, before the discharge, at day 10 and at day 30; 5).

Other postoperative complications: the time frame was: before the extubation, before the discharge, at day 10 and at day 30; 6). Patient satisfaction: satisfied or not satisfied from the procedure (and not from the result of surgery): the time frame was day 30.

RESULTS

Twelve (12) females were operated versus 5 males. The sex ratio was 0.41. The mean age was 24.47(range:17-33) years. The mean age for females was 25.08 (range: 18-31) years. The mean age for males was 23(range:17-33) years. Table I summarizes collected data.

Application of the procedure

All operated patients had a palmo-plantar or axillary hyperhidrosis, they were ASA I with no medical or surgical antecedent.

They underwent bilateral thoracic sympathectomy from T2 to T4 throw VTS under general anesthesia after their consent. Technique of electrocoagulation was used in all case. one chest tube for each side was connected to an aspiration system for all cases.

Collected data

A chest X-ray was performed in the operating room for all cases with no anomalies detected. The chest tube removal was performed starting with the right side for all patients. All patients were discharged at the 6th hour at the postoperative.

The chest X-ray performed before discharge was also normal for all cases. The follow-up at the 10th hour verified that no respiratory distress for all patients was detected. No patient had developed a respiratory distress in all the postoperative. In addition to that, no postoperative morbidities had been detected during the follow up except compensative except compensatory sweating: 2 cases at 10th day and 1 case at 30th day. The chest X-rays performed at 10th and 30th day were perfectly normal in all cases. All patients were satisfied about the procedure at the end of the follow up.

Table 1: Collected data in different time frames.

		Time frame				
		Before extubation	**Before discharge**	**10th hour**	**10th day**	**30th day**
Age (mean, range)	24.47, 17-33					
Gender (M, F, Ratio)	5, 12, 0.41					
Chest X-ray disorder		No	No	No	-	No
Respiratory distress		No	No	No	No	No
Other complication		No	No	No	2	1
Satisfaction		-	-	-	-	Yes

DISCUSSION

Bilateral thoracic sympathectomy for hyperhidrosis is commonly applied for patient who had a very inconvenient palmo-plantar or axillary hyperhidrosis after the fail of other alternative. It is a safe surgery characterized by a low rate of postoperative morbidities (We think that compensatory sweating should be considered as a side effect and not a complication).[6] Many techniques are used for sympathectomy such as electro-coagulation, complete dissection of sympathic chain or clip placement. We are used to perform the electro-coagulation because we think that it is simpler, and it avoids any risk of post-operative hemorrhage with the same efficacy as the complete dissection technique.

Thoracic surgery is characterized by the air leaking as the most frequent postoperative complication.[7] The management of operated patient needs chest tube placement with a connection to an aspiration source. The risk of postoperative air leaking is depending on the type of lung intervention. For thoracic sympathectomy, this risk is minimal.[6] Thus we had chosen to apply the early chest tube removal for patients how underwent thoracic sympathectomy: safe surgery with low air leaking risk.

When some authors discharge patients with chest tubes on siphoning, others proposed to discharge them with chest tube connected to a portable drainage system that can safety maintain the pleural cavity in aspiration.[8] Other teams propose to detect the early air leaking using an electronic device to make the removal in safety 2 hours after the surgery.[9] Another alternative is to remove the chest tube early on the first postoperative day just after a chest X-ray.[10-12] All these previous procedure are described as efficient to reduce the postoperative hospital stay. But a chest tube removal before the extubation is not commonly described in the literature. In our experience we haven't detected any postoperative complication and all operated patients were satisfied. We think that this procedure is safe and with low cost: it doesn't need any sophisticated devices or high costing equipment's.

CONCLUSION

The ambulatory thoracic surgery procedures can safely, and efficiency be applied if the patient is well selected. The progression on operative mini invasive techniques will increase the number of patients who can profit from an "alleviated thoracic surgery".

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Ethical approval: The study was approved by the Institutional Ethics Committee

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