NAUTILUS
Vol:128; Issue 1(No:1) February 2014: 64-68 ISSN 0028-1344

Complications during and one Month after Surgery in the Patients who Underwent Thoracoscopic Surgery

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ABSTRACT

Thoracoscopy is a new method in surgery whose role is expanding in diagnosis and a wide range of treatment of chest disorder. Thoracoscopy has many diagnostic and therapeutic benefits and Knowing about the complications of this diagnostic and therapeutic method that is being used broadly seems necessary. In this study, complications during and one month after surgery in the patients who underwent thoracoscopy were reviewed. **Materials and methods:** This prospective study was performed in 66 patients who underwent thoracoscopic surgery (VATS) between March 2012 and March 2013 at the rasht hospitals. Patients were assessed after surgery for one month follow–up. **Findings:** 66 patients were evaluated between March 2012 and march 2013. Most patients were male. The mean age of patients was 43.37±17.31 (range, 5 to 82). Intraoperative complications were as follow: Conversion from VATS to open Thoracotomy in 5 patients (7.6%), bleeding in 3 patients (5.4%) and Heart complication in 2 patients (3%). postoperative complications were as follows: Air leak in 9 patients (13.6%), atelectasis in 4 patients (1.6%), pneumothorax in 2 patients (%3), heart complications in 2 patients (%3), Empyema in 1 patient (5.1%). the median VAS score in patients was 4. Only 1.5% of the patients who underwent thoracoscopy led to death. **Conclusion:** In our study, patients with pleural effusion with unknown origin, palmer hyperhidrosis, empyema, trauma, and hemothorax underwent thoracoscopy. The results showed that complications during and after surgery were minimal and most patients had low postoperative pain.

Key words: Thoracoscopy, Thoracotomy, Air leak, Indication, Complication

INTRODUCTION

Thoracoscopy is a new method in surgery whose role is expanding in diagnosis and a wide range of treatment of chest disorders that were previously operated by open thoracotomy or sternotomy (Stammberger et al, 2000). At beginning, thoracoscopy was used for simple diagnostic means in pleural, pulmonary and mediastinal diseases although nowadays VATS perform in major surgeries that was previously needed open thoracotomy (Kaseda et al, 2000). At present, thoracoscopic surgeries don't limit to lung, pleura and mediastinum and all intrathoracic structures including heart, large vessels, esophagus, diaphragm, vertebral column and nerve roots operate thoracoscopically (Imperatori et al, 2008; Roviaro et al, 2002). Thoracoscopy have numerous diagnostic and therapeutic benefits even if thoracotomy is needed, primary thoracoscopy determines size, shape and extension of incision (Ahmeda, 2004; Milfield et al,1997; Mineo et al, 1999; Landreneau et al,1995; kern et al, 1993). Thoracoscopic surgery is gold standard for surgical treatment of pneumothorax, pulmonary bullous diseases, pleural effusion, trauma to the esophagus and lung (Luciano et al, 2009; Yim et al, 1997; Liu et al, 1997, 1999). In this study, we assess complications during and one month after surgery in the patients who underwent thoracoscopic surgery.

MATERIALS AND METHODS

This prospective study was performed in 66 patients who underwent thoracoscopic surgery (VATS) between March 2012 and March 2013 at the rasht hospitals. Patients were assessed with completion of charts about demographic characteristics (age, sex), smoking history, complications during and one month after thoracoscopic surgery. All of the patient information remained secret. Inclusion criteria were pleural effusions, mediastinal lymphadenopathies, peripheral pulmonary nodules, spontaneous pneumothorax, thoracic sympathectomy, mediastinal masses. An exclusion criterion was protracted empyema, extensive pleural adhesion, and one lung ventilation intolerance. Data was analyzed by SPSS software (version 19, SPSS Inc., Chicago, IL) and using Fisher's exact test. Statistical results were considered significant in $P< 0.05$.

RESULTS

During this study period, 39 patients were male and 27 female**.** The mean age was 43.37±17.31 (range, 5 to 82 years). 34 patients were smoker and only 5 patients were diabetic. Indications of thoracoscopic surgery in our patients was as follow: 40 patients with pleural effusion with unknown origin (60.6%), 18 patients with hand hyperhidrosis (27.3%), 1 patient with pleural mass (1.5%), 1 patient with pulmonary nodule(1.5%), 2 patients with empyema (4.5%), 1 patient with chest trauma (1.5%) and 1 patient with hemothorax (1.5%). Majority of patients don't need to ICU admission (89.4%) and only 7 patients (10.6%) admitted to ICU. the mean Length of ICU stays was 5 days. The 8 patients had intraoperative complication including Conversion from VATS to open thoracotomy in 5 patients (7.6%), bleeding in 3 patients (4.5%) and cardiac complication in 2 patients (3%), (Figure 1). Only 2 patients had two intraoperative complications. Postoperative complications were as follow: Air Leak in 9 patients (13.6%), atelectasia in 4 patients (6.1%), pneumothorax in 2 patients (3%) and empyema in 1 patient (1.5%), (Figure 2). Only 1 patient had two postoperative complications.

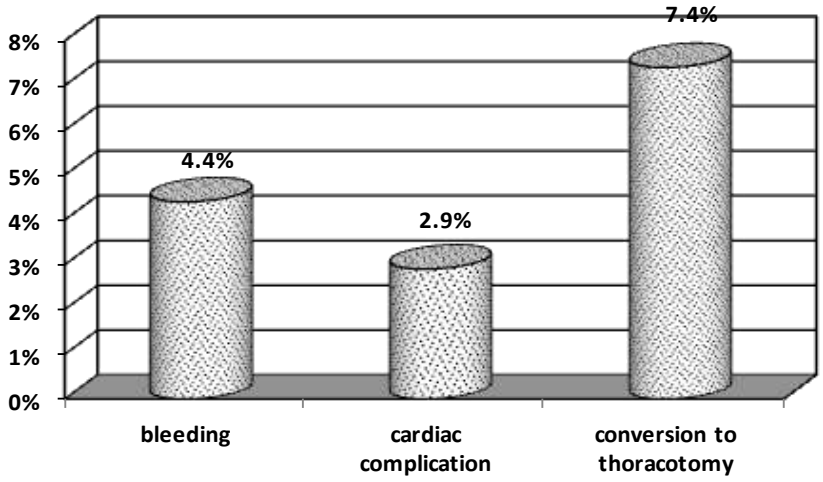

Figure 1: Frequency distribution of intraoperative complications

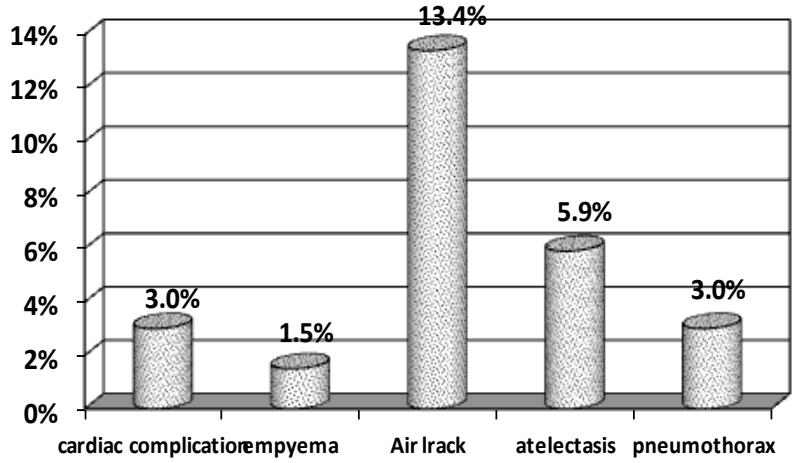

Figure 2: Frequency distribution of postoperative complications

In the present study, postoperative pain assesses with visual analogue scale (VAS) score: mild 1-3, Moderate 4-6, and severe 7-10. 32 patients had moderate VAS score (48.5%), and 8 patients had severe VAS score (12.1%). The mean VAS score was 4 (range, 2 to 9). 48 patients had pathologic sample and 18 patients with hand hyperhidrosis didn't have pathologic sample. From 48 patients with pathologic sample, 20 patients had tuberculosis (41.7%), 18 patients had inflammatory origin and 10 patients had lung or pleural cancer. 1 patient expired. Majority of patients with more severe postoperative pain had inflammatory pathologic report and most severe pain was seen in patients with tuberculosis.

DISCUSSION

Thoracoscopy is a new method in surgery whose role is expanding in diagnosis and a wide range of treatment of chest disorders that were previously operated by open thoracotomy or sternotomy (Stammberger et al, 2000). In the present study, the mean age was 43.37±17.31 (range, 5 to 82 years). Age group of most patients was more than 50 years. Most patients were male (59.1%). in the luciano study (2009), the sample size were 282 patients and the mean age was 41 years and most patients were male (59.5%). in the Yim study (1997), the sample size was 1067 patients and the mean age was 56 years and most patients were male (50.8%). In the present study, most patients were smoker while other studies did not mention smoking history. Most patients were not diabetic while in other studies did not mention diabetic history. In the present study, most patients had pleural effusion with unknown origin (60.6%) and then hand hyperhidrosis (27.3%). In the previous studies, patients with specific disease was assessed such as lobectomy for lung cancer in the Yim study (1997), empyema in the Vejdan study (2010) and pneumothorax in the luciano study (2009). ICU admission rate was 10.6% while in the other studies did not mention ICU admission rate. 12.1% of our patients had intraoperative complication including conversion to thoracotomy 7.6%, bleeding 4.5% and 3% cardiac complication. 32% of the luciano(2009) patients had intraoperative complication including 1.4% conversion to thoracotomy. 3.5% of the patients in the Vejdan study (2010) and 1.5% in the imperatori study (2009) had conversion to thoracotomy. In the present study, Most common postoperative complication was air leak (13.6%) and then atelectasis (6.1%), pneumothorax (3%), cardiac complication (3%) and empyema (1.5%). in the Yim study (1997), Most common postoperative complication was air leak and then arrhythmia and pnumothorax. in the luciano study (2009), most common postoperative complication was air leak. In the present study, postoperative pain assessed with VAS score. VAS score of most patients were 4 - 6 and only 12.1% of the patients had VAS>7. Severe postoperative pain was seen in the patients with inflammatory processes and most severe postoperative pain was seen in patient with tuberculosis. Luciano (2009) mentioned that postoperative pain after VATS for pneumothorax was more than other VATS. In the other studies, postoperative pain

did not mention. In the present study, most common pathologic report after VATS was tuberculosis and lowest pathologic report was cancer. In the other studies, patients with specific disease type were assessed. In the present study, there was no significant statistical correlation between gender and complication occurrence but there was significant statistical correlation between increase in age and complication occurrence. There was no significant statistical correlation between smoking and complication occurrence but there was significant statistical correlation between diabetes and intraoperative complication occurrence. There was significant statistical correlation between complication occurrence and length of ICU stay. There was significant statistical correlation between complication occurrence and the amount of patient pain. There was not significant statistical correlation between pathologic results and complication occurrence. Patients with cancer had longest ICU stay. In our patients, intraoperave and postoperative complications rate was minimal and most patient had low postoperative pain. One of the criticisms of this study could be that it was not randomized and we recommend conducting a randomized trial between VATS and open thoracotomy for assessment of correlation between complication occurrences and underlying diseases.

ACKNOWLEDGEMENTS

This investigation was based on a thesis submitted by the fourth author to the Guilan University of Medical Science (GUMS) in Iran, in partial fulfillment of the requirements for receiving a specialist degree in general surgery.

REFERENCES

1. Imperatori, A, N. Rotolo, Matteo Gatti. Peri-operative complications of video-assisted thoracoscopic surgery (VATS) International Journal of Surgery 6 (2008) 78–81.
2. Imperatori, A, N. Rotolo, M. Gatti, C. Antonini, L. Dominion. The complications of video-assisted thoracoscopic surgery (VATS). New Technologies in Surgery, 200; 1(1)
3. Kaseda S, Aoki T, Hangai N, et al: Better pulmonary function and prognosis with video-assisted thoracic surgery than with thoracotomy. Ann Thorac Surg 2000; 70:1644
4. Kern JA, Tribble CG, Spotnitz WD, Rodgers BM, Daniel TM. Thoracoscopy in the sub acute management of patients with Thoracoabdominal trauma. Chest 1993; 104: 942-5.
5. Landreneau RJ, Kennan RJ, Hazelrigg SR, Mack MJ, Naunheim KS. Thoracoscopy for empyema and haemothorax. Chest 1995; 109: 18-24.
6. Liu HP, Yim APC , Izzat BM , Lin PJ, Chang CH. Thoracoscopic surgery for spontaneous pneumothorax. World J Surg 1999; 23:1133-6.
7. Liu HP, Chang CH, Lin PJ, Chu JJ, Hsieh MJ. An alternative technique in the management of bullous emphysema thoracoscopic endoloop ligation of bulla. Chest 1997; 111: 489-93
8. Luciano Solaini, Francesco Prusciano, Leonardo Solaini and Massimiliano Carletti Intraoperative, Postoperative and Long-Term Complications of VATS Treatment of Pneumothorax and Bullous Disease. A Review The Open Cardiovascular and Thoracic Surgery Journal, 2009, 2: 33-37
9. Milfield DJ, Mattox L, Beal AC. Early evacuation of clotted hemothorax. Am J Surg 1997; 136: 254-8.
10. Mineo TC, Ambrogi V, Cristino B, Pompeo E, Pistolese C. Changing indications for thoracoscopy in blunt chest trauma after the advent of videothoracoscopy. J Trauma 1999; 47: 1088-91.
11. Ahmeda, N. Jonesb, D. Video-assisted thoracic surgery: state of the art in trauma care Injury, Int. J. Care Injured (2004) 35, 479-489
12. Milfield DJ, Mattox KL, Beal AC. Early evacuation of clotted hemothorax. Am J Surg 1997; 136:254-8
13. Roviaro GC, Varoli F, Vergani C, Maciocco M. State of the art in thoracoscopic surgery. A personal experience of 2000 video thoracoscopic procedures and an overview of the literature. Surg Endosc 2002; 16: 881–92.
14. Stammberger U, Steinacher C, Hillinger S, et al: Early and long-term complaints following video-assisted thoracoscopic surgery: Evaluation in 173 patients. Eur J Cardiothorac Surg 2000; 18:7.

15. Vejdan SAK. Naseh Gh. Khosravy M., Khamesan A. Thoracoscopy Vs conventional methods in the management of empyema: a prospective study Tehran University Medical Journal; 67, 2010: 772-777.
16. Yim APC, Liu HP. Video-assisted thoracoscopic management of primary spontaneous pneumothorax. Surg Laparosc Endosc 1997; 7: 236-40.

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