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ORIGINAL RESEARCH

Efficacy Of Mediastinoscopy In Diagnosing Thoracic Diseases- A Clinical Study

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ABSTRACT:)
Background: Mediastinoscopy has been extremely valuable in the evaluation and staging of lung cancer. The present study was conducted to assess usefulness of mediastinoscopy in thoracic diseases. **Materials & Methods:** The present study was conducted on 156 cases of mediastinoscopy performed in the department. The type of lesions, the sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) of mediastinoscopy was evaluated. **Results:** Age group 0-10 years had 5, 10-20 had 14, 2030 had 34, 30-40 had 45, 40-50 had 30 and >50 years had 20. The difference was significant (P< 0.05). Common lesions were metastatic non-small cell carcinoma in 60, metastatic small cell carcinoma in 35, hematologic malignancies in 28 and non-neoplastic conditions in 12. The difference was significant (P< 0.05). Sensitivity found to be 89%, specificity was 98%, PPV was 100% and NPV was 94%. **Conclusion:** Mediastinoscopy is a reliable method for diagnosis of thoracic lesions. There was high sensitivity, specificity of the method.

Key words: Lung, Mediastinoscopy, Small cell carcinoma

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INTRODUCTION

Mediastinoscopy is a minimally invasive surgical procedure that allows visualization and tissue sampling of mediastinal nodes. Mediastinoscopy has been extremely valuable in the evaluation and staging of lung cancer and therefore has been considered the gold standard for this purpose for over 30 years.[1] Surgical entry into the superior mediastinum as a therapeutic measure has been practiced for more than seventy years. Successful drainage of a superior mediastinal abscess was reported first in 1899. The technique of mediastinostomy in caring for superior mediastinitis was advanced by the Viennese, particularly von Hacker and Marschik.[2]

Pathologic staging of the mediastinal lymph nodes is critically important in the triage of patients with non-small cell lung cancer (NSCLC) to various forms of therapy. Even with the advent of positron emission tomography computed tomography (PET/CT), radiographic staging of lymph nodes is notoriously inaccurate. Because some patients with mediastinal lymph node involvement should likely not be treated surgically (patients with N3 lymph node involvement and bulky or multistation N2 lymph node involvement), and other patients likely have their chances of cure substantially improved by induction chemotherapy or chemo radiation.[3]

This procedure has been associated with a low morbidity and mortality and a high sensitivity for diagnosing lung cancer with certain procedural limitations. Recently, it has been reported that not only is mediastinoscopy use limited in community practice, concomitant biopsy rates are limited as well.[4] The present study was conducted to assess usefulness of mediastinoscopy in thoracic diseases.

MATERIALS & METHODS

The present study was conducted in the department of General Medicine. It comprised of 156 cases of mediastinoscopy performed in the department on both genders. All were informed regarding the study. Ethical approval was obtained from institute prior to the study. General information such as name, age, gender etc. was recorded. The type of lesions, the sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) of mediastinoscopy was evaluated. Results thus obtained

were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Age wise distribution of patients

Age group (Years)	Number
0-10	5
10-20	14
20-30	34
30-40	45
40-50	30
>50	20

Table I shows that age group 0-10 years had 5, 10-20 had 14, 2030 had 34, 30-40 had 45, 40-50 had 30 and >50 years had 20. The difference was significant (P< 0.05).

Table II Type of lesions

Lesions	Number	P value
Metastatic non-small cell carcinoma	60	0.01
Metastatic small cell carcinoma	35	
Hematologic malignancies	28	
Non-neoplastic conditions	12	

Table II shows that common lesions were metastatic non-small cell carcinoma in 60, metastatic small cell carcinoma in 35, hematologic malignancies in 28 and non-neoplastic conditions in 12. The difference was significant (P< 0.05).

Table III Diagnostic value of mediastinoscopy

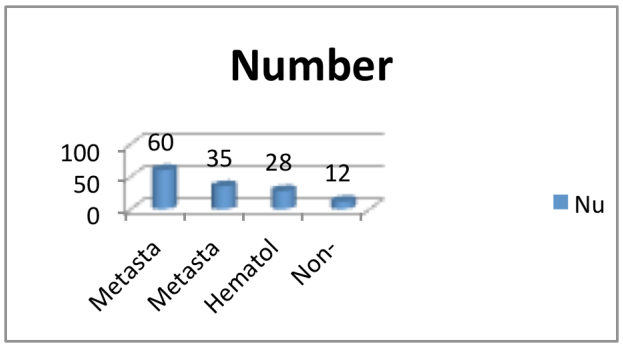
Parameters	Percentage
Sensitivity	89%
Specificity	98%
Positive predictive value (PPV)	100%
Negative predictive value (NPV)	94%

Table III shows that sensitivity found to be 89%, specificity was 98%, PPV was 100% and NPV was 94%.

DISCUSSION

Mediastinoscopy, the traditional means of pathologic mediastinal lymph node evaluation prior to proceeding to definitive treatment

Graph I Type of lesions



of NSCLC, does require a fair amount of experience to perform effectively, efficiently, and safely. Most agree that it is relatively more difficult to teach than many other procedures, particularly prior to the introduction of video mediastinoscopy. There is no doubt that many surgeons would prefer to avoid the procedure altogether given the very rare but real occurrence of substantial bleeding complications.[5] The present study was conducted to assess usefulness of mediastinoscopy in thoracic diseases. In this study, age group 0-10 years had 5, 10-20 had 14, 20-30 had 34, 30-40 had 45, 40-50 had 30 and >50 years had 20. Borges et al[6] performed a retrospective chart review of 287 patients who had mediastinoscopy between 2004 and 2009. Of the 287 patients selected for this study, 57 % were males and 43 % females. The average age of the patients' was 63 years with 234 patients being between 50 and 80 years old. One hundred and ninety eight patients were diagnosed with cancer, while 89 had non-malignant diseases. Of the 198 patients diagnosed with cancer, 107 had metastatic disease, 65 of which were diagnosed with mediastinoscopy, while the remaining 42 patients required further diagnostic procedures. The complication rate was only 0.01 % with 3 patients having complications. Joseph et al[7] endobronchial ultrasound (EBUS-TBNA) is emerging as an alternative to mediastinoscopy for mediastinal lymph node evaluation in non-small cell lung cancer. It remains controversial whether EBUS-TBNA is as accurate as mediastinoscopy. Sensitivity appears similar to mediastinoscopy with enlarged nodes, but lower with normal sized nodes. The false negative rate appears higher than with mediastinoscopy, so nonmalignant EBUS results may be unreliable. We found that common lesions were metastatic non-small cell carcinoma in 60, metastatic small cell carcinoma in 35, hematologic malignancies in 28 and non-neoplastic conditions in 12. Sensitivity found to be 89%, specificity was 98%, PPV was 100% and NPV was 94%. Kelly et al[8] concluded that positron emission tomography scan cannot replace mediastinoscopy for the evaluation of adenocarcinoma or malignant lymph nodes less than 1 cm in diameter. Parker et al[9] encountered 3 complications yielding a complication rate of 0.01 %. The complications we observed were pneumothorax, laryngeal spasm requiring intubation and one case of narcotic overdose. There were no mortalities in the study. Significant complications generally occur secondary to hemorrhage, either from puncture of the great vessels or from accidentally biopsying bronchial arteries. Dillemans et al[10] reported the sensitivity and accuracy of computed tomography scan to be 69 % and 71% respectively, with low accuracy in the diagnosis of squamous cell carcinomas and central tumors.

CONCLUSION

Mediastinoscopy is a reliable method for diagnosis of thoracic lesions. There was high sensitivity, specificity of the method.

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