**Case Report**

**Would There Be Iatrogenic Pneumothorax During Parathyroid Gland Biopsy?**

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**Running Title: Pneumothorax During Parathyroid Gland Biopsy.**

**Abstract**

Introduction: Iatrogenic pneumothorax is an important subgroup of traumatic pneumothoraces, which may occur during many invasive procedures including surgeries. We present a case of iatrogenic pneumothorax that occurred during parathyroid gland biopsy in this report.

Case Reort: 54-year-old male patient was consulted to our clinics with the complaints of acute onset right-sided chest pain and dyspnea that occurred during parathyroid gland biopsy. Patient’s physical examination revealed diminished respiratory sounds on the right hemithorax. Pneumothorax on the right hemithorax was found on the posterior-anterior chest x-ray. Chest tube thoracostomy was immediately performed through right fifth intercostal space. Air drainage stopped on the second post-procedure day, but lung auscultation revealed diminished respiratory sounds on the right apical zone on the fourth post-procedure day. Chest x-ray was performed on the same day which revealed lung expansion defect. Chest tube was clamped. Chest x-ray was repeated 2 hours later, and it did not show any significant difference. Chest tube was removed. Control physical examination and chest x-ray did not reveal any significant abnormalities and the patient was discharged.

Discussion: The most common cause of iatrogenic pneumothorax is subclavian catheter insertion. Transthoracic/transbronchial fine needle biopsy, positive pressure mechanical ventilation are also among the top etiological procedures for iatrogenic pneumothorax. No case report of the occurrence of iatrogenic pneumothorax during parathyroid gland biopsy was found.

It should always be kept in mind that peri-thoracic invasive procedures may cause iatrogenic pneumothorax.

**Keywords**

Pneumothorax, Thoracostomy, Biopsy, Fine-Needle, Iatrogenic Disease

**Introduction**

Pneumothorax is the pathological accumulation of air in the pleural cavity. Pneumothoraces can be spontaneous or traumatic. Iatrogenic pneumothorax (IPx) is an important subgroup of traumatic pneumothoraces. IPx’s may occur during many invasive procedures, including surgeries [1]. We present a case of iatrogenic pneumothorax that occurred during parathyroid gland biopsy in this report.

**Case Report**

54-year-old male patient was consulted to our clinics with the complaints of acute onset right-sided chest pain and dyspnea that occurred during parathyroid gland biopsy performed by the endocrinology clinics. Patient’s physical examination findings were blood pressure of 130/88 mm Hg, heart rate of 96/min, respiratory rate of 26/min. Lung auscultation revealed diminished respiratory sounds on the right hemithorax. Pneumothorax on the right hemithorax was found on the posterior-anterior (PA) chest x-ray (Figure 1). Chest tube thoracostomy using 28 French (Fr) drain was performed immediately through the intersection of right fifth intercostal space and mid-axillary line. Air drainage stopped on the second post-procedure day, but lung auscultation revealed diminished respiratory sounds on the right apical zone on the fourth post-procedure day. PA chest x-ray was performed on the same day, which revealed lung expansion defect (Figure 2). Chest tube was clamped. PA chest x-ray was repeated 2 hours later, and it did not show any significant difference. The chest tube was removed. Control physical examination and PA chest x-ray did not reveal any significant abnormalities. The patient was discharged and invited for a follow up outpatient clinics examination.

**Discussion**

The most common cause of IPx’s is subclavian catheter insertion. Transthoracic/transbronchial fine needle biopsy, positive pressure mechanical ventilation are also among the top etiological procedures for IPx [1]. It has also been reported that IPx has occurred during axillary lymph node biopsy, hypoglossal nerve stimulation, and acupuncture [2-4]. No case report of the occurrence of IPx during parathyroid gland biopsy was found.

IPx incidence is reported to be 1.36% and increase over the number of invasive interventions [5].

Pathophysiology of IPx is similar to non-iatrogenic traumatic pneumothoraces. In Ipx, the visceral pleura is usually damaged, and this could even lead to potentially life-threatening tension pneumothorax. Thus the symptoms and signs include decreased or absent breath sounds on the affected side, pleuritic pain and dyspnea, tachypnea, and tachycardia. If tension pneumothorax is present, hypotension, bradycardia, and cardiopulmonary arrest may occur [6].

Treatment of IPx is similar to any other type of pneumothorax, and it is dependent on the severity of the condition. Simple observation with oxygen insufflation can be curative in cases of mild pneumothoraces (<20%) as long as the patient is stable. Fine needle aspiration can also be considered as a treatment. Chest tube thoracostomy is the treatment of choice in large volume pneumothoraces and unstable cases [6].

As a conclusion it should always be kept in mind that peri-thoracic invasive procedures may cause IPx. In case of clinical suspicion for IPx thoracic surgery clinics should be consulted without delay and thus, potential morbidity and mortality attributable to pneumothorax can be prevented.

**DECLARATIONS**

**Authors’ contributions**

Made substantial contributions to conception and design of the study and performed data analysis and interpretation. Performed data acquisition, as well as provided administrative, technical, and material support: Gedik İ E.

**Availability of Data and Materials**

Not applicable.

**Financial support and sponsorship**

None.

**Conflicts of interest**

All authors declared that there are no conflicts of interest.

**Ethical approval and consent to participate**

Not applicable.

**Consent for publication**

Not applicable.

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Figure Legend

Figure 1. Right sided pneumothorax on PA chest x ray.

Figure 2. Right lung expansion defect seen on PA chest x ray.