Case Report

Eur Arch Med Res 2018; 34 (3): 203-5

A Rare Presentation of Spontaneous Pneumomediastinum Mimicking Bilateral Parotitis

Mehmet Burak Aşık, Murat Bınar

Department of Otolaryngology and Head and Neck Surgery, Gülhane Training and Research Hospital, Ankara, Turkey

Abstract

Spontaneous pneumomediastinum is an uncommon clinical form of pneumomediastinum with no relationship to trauma or surgical procedures. Head and neck manifestations are predominant and may be confused with symptoms of acute parotitis. We report a case of spontaneous pneumomediastinum mimicking bilateral parotitis in a 23-year-old male patient. The symptoms and findings, swelling, and pain, secondary to air passing through the deep fascial planes in the head and neck region, were dominant at the beginning of clinical history. The aim of this case report was to outline the risk of misdiagnosing spontaneous pneumomediastinum as an acute parotitis.

Keywords: Spontaneous pneumomediastinum, parotitis, misdiagnose

INTRODUCTION

Spontaneous pneumomediastinum (Hamman's syndrome) is an uncommon clinical form of pneumomediastinum with no relationship to trauma or surgical procedures (1). It is more commonly seen in children than in adults, ranging from 0.001% to 0.01% (1, 2). In adults, it is frequently seen in the second and third decades of life (2). Coughing, vomiting, exercise, and inhaled drug use have been reported as causes of spontaneous pneumomediastinum (1). Head and neck surgery, Valsalva maneuver, and pulmonary pathologies in childhood have been reported in the etiology as well (3). In 31% of the cases, no precipitating factors have been found (3). Patients usually present with dyspnea and chest pain, as well as dysphagia, neck pain, swelling of the face and neck, and voice changes, according to the extent of emphysema (2, 3). The physical findings in the head and neck region are related with spontaneous pneumomediastinum, arising secondary to air passing through the deep fascial planes in the head and neck region (4).

Parotitis is a common inflammatory disease with or without inflammation of the parotid gland. On physical examination, patients with parotitis have redness, facial erythema, facial swelling, pain with palpation, and local heat over the parotid region (2, 5). The head and neck symptoms of pneumomediastinum, such as neck swelling and neck pain, are similar to the symptoms of parotitis (2). Potential fascial planes of the head and neck may be forced with emphysema (6). Emphysema in the deep fascial planes and the subcutaneous planes of the head and neck may be the first revealing findings of pneumomediastinum (2). We report a case of spontaneous pneumomediastinum mimicking parotitis and discuss the literature on spontaneous pneumomediastinum.

CASE PRESENTATION

A 23-year-old male patient was admitted to our clinic from the emergency department with a diagnosis of acute bilateral suppurative parotitis. The patient reported head and neck pain and swelling as well as chest pain for 2 days. The patient reported no dyspnea or dysphagia on admission. On physical examination, subcutaneous emphysema, crepitation, swelling, and pain on palpation over the anterior thoracic wall and extending to the bilateral temporal region

ORCID IDs of the authors:
M.B.A. 0000-0002-1093-841X
M.B. 0000-0003-2613-8561.

Cite this article as:
Aşık MB, Bınar M. A Rare Presentation of Spontaneous Pneumomediastinum Mimicking Bilateral Parotitis. Eur Arch Med Res 2018; 34 (3): 203-5

Corresponding Author:
Mehmet Burak Aşık

E-mail:
burock312@yahoo.com

Received: 19.07.2017

Accepted: 09.11.2017

DOI:10.5152/eamr.2018.35403

©Copyright 2018 by European Archives of Medical Research - Available online at eurarchmedres.org

through the neck and parotid regions were noted. Pulmonary and cardiac auscultation was normal. Transnasal endoscopic upper respiratory tract examination was also normal. A computed tomography (CT) scan confirmed pneumomediastinum in the anterior mediastinal space and subcutaneous emphysema over the anterior thoracic wall extending to the bilateral temporal region over the neck and parotid regions. In addition, emphysema was seen in the retropharyngeal and parapharyngeal spaces and the carotid sheath. Blood tests showed that the amylase level was 20 times higher than the normal range. White blood cell count was slightly elevated. Erythrocyte sedimentation rate was normal. The patient was administered antibiotherapy and analgesic treatment. The patient was on antibiotic treatment for 10 days in the clinic and was asymptomatic, on clinical and radiological examinations, at discharge.

After 1 month, the patient was readmitted to the thoracic surgery department with the same symptoms and physical findings. Transnasal endoscopic upper respiratory tract examination was normal. Esophagoscopic and bronchoscopic examinations were also normal. However, a CT scan showed pneumomediastinum and subcutaneous emphysema in the cervical region. The patient was administered the same treatment as before. After 10 days, his symptoms resolved completely, and a 1-year follow-up was uneventful.

DISCUSSION

Spontaneous pneumomediastinum (Hamman's syndrome) is an uncommon clinical form of pneumomediastinum with no relationship to trauma or surgical procedures (1). This rare clinical form is not well known among otolaryngologists, but it can be a life-threatening condition (2). In this case, inexperienced junior residents discharged the patient from the emergency department with a diagnosis of acute parotitis. However, after detailed otolaryngologic examinations, spontaneous pneumomediastinum was confirmed as the correct diagnosis. Pneumomediastinum is different from pneumothorax in which the parietal pleura remains intact (2). The factors in which the glottic gap is closed, such as coughing, vomiting, or provocative Valsalva maneuver, comprise the etiology of spontaneous pneumomediastinum (2). Respiratory distress or hemodynamic problems could co-occur with pneumomediastinum and cause air compression to vital structures (6). Overdistended, increased alveolar pressure, and alveolar rupture are the primary pathogenetic factors (1, 2). While breathing, air passes through the mediastinum, but not the pleura; this is called the Macklin effect (1). When mediastinal pressure decreases, parenchymal pressure increases, and air passes through the mediastinal space (1).

Patients with pneumomediastinum usually present with dyspnea and chest pain as well as dysphagia, neck pain, swelling of the face and neck, and voice changes according to the extent of emphysema (2, 3). Some patients may also have predominant symptoms in the head and neck (2). Recurrence of spontaneous pneumomediastinum is very rare (2, 3). In this case report, recurrence was observed, but there were no pathological findings indicating what caused the recurrence of pneumomediastinum. A previous study has only reported one case of recurrence (3). This is the second study in the literature that reported the recurrence of pneumomediastinum. Kelly et al. (7) and Gunluoglu et al. (8) noted that neck swelling symptoms are more common than chest pain. However, Abolnik et al. (9) found that chest pain symptoms may be more common than expected.

Patients with parotitis typically have redness, facial erythema, facial swelling, facial pain on palpation, and local heat over the parotid region (2, 5). Head and neck symptoms of pneumomediastinum, such as neck swelling and neck pain, are similar to the symptoms of parotitis (2). However, similar to parotitis, pain in the neck and parotid regions on palpation as well as swelling, particularly in the parotid region, were experienced. The most important symptom, according to the patient, was neck and facial swelling beginning from the chest and traveling through the neck. His amylase level was 20 times higher than the normal range, and his white blood cell count was slightly elevated. With these findings, it is easy to see how the patient was misdiagnosed with parotitis. We could not explain why his amylase level was elevated. Certain etiological factors, such as viral diseases, may cause both parotitis and pneumomediastinum. In this case report, we observed that there was a relationship between parotitis and spontaneous pneumomediastinum within viral etiology. This made us consider possible advanced diagnostic tests that could be performed to accurately diagnose parotitis.

Although a lack of similarity with pneumomediastinum can lead to inappropriate treatment and diagnosis, which can be life-threatening depending on the circumstances, spontaneous pneumomediastinum itself is generally a self-limiting and benign disease (1, 3). In conservative treatment, analgesics, antibiotics, and rest are prescribed, and a mediastinal tube may also be inserted (2). Newcomb et al. (10) reported bed rest, antibiotherapy, analgesia, and oxygen therapy as sufficient treatment. However, Patel et al. (11) noted that antibiotics are not necessary, except when a perforation in the upper airway and esophageal tract is suspected.

CONCLUSION

Spontaneous pneumomediastinum is generally a self-limiting, benign disease. However, it can be life-threatening due to its close proximity to vital structures in the thorax and head and neck regions. Head and neck manifestations are predominant. Parotitis symptoms may be confused with symptoms of spontaneous pneumomediastinum. When spontaneous pneumomediastinum is confused with other clinical situations and misdiagnosed, it has the potential to be a life-threatening disease. Therefore, awareness of spontaneous pneumomediastinum is important in otolaryngology.

Informed Consent: Written informed consent was obtained from patient who participated in this case report.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept – M.B.A.; Design – M.B.A., M.B.; Supervision – M.B.A.; Resources – M.B., M.B.A. Materials – M.B.; Data Collection and/or Processing – M.B.A.; Analysis and/or Interpretation – M.B.A., M.B.; Literature Search – M.B.A.; Writing Manuscript – M.B.A.; Critical Review – M.B., M.B.A.; Other – M.B.

Conflict of Interest: Authors have no conflicts of interest to declare.

Financial Disclosure: The authors declared that this study has received no financial support.

REFERENCES

1. Alves G, Silva R, Correa J, Colpo C, Cezimba H, Haygert C. Spontaneous pneumomediastinum (Hamman's syndrome). J Bras Pneumol 2012; 38: 404-7. [CrossRef]
2. Huon LK, Chang YL, Wang PC, Chen PY. Head and neck manifestations of spontaneous pneumomediastinum. Otolaryngol Head Neck Surg 2012; 146: 53-7. [CrossRef]
3. Singla M, Potocko J, Sanstead J, Pepper P. Ooh-rah! An unusual cause of Spontaneous pneumomediastinum. Mil Med 2012; 177: 1396-8. [CrossRef]
4. Ong WC, Lim TC, Lim J, Sundar G. Cervicofascial, retropharyngeal and mediastinal emphysema: A complication of orbital fracture. Asian J Surg 2005; 25: 305-8. [CrossRef]
5. Han S. Isaacson G. Recurrent pneumoparotid: Cause and treatment. Otolaryngology Head Neck Surg 2004; 131: 758-61. [CrossRef]
6. Colson JD. Cervicofascial subcutaneous emphysema and pneumomediastinum after retinal detachment surgery: Just another monitored anesthesia eye case. J Clin Anesth 2011; 23: 410-3. [CrossRef]
7. Kelly S, Hughes S, Nixon S, Paterson-Brown S. Spontaneous pneumomediastinum (Hamman's syndrome). Surgeon 2010; 8: 63-6. [CrossRef]
8. Gunluoglu MZ, Cansever L, Demir A. Diagnosis and treatment of spontaneous pneumomediastinum. Thorac Cardiovasc Surg 2009; 57: 229-31. [CrossRef]
9. Abolnik I, Lossos IS, Breuer R. Spontaneous pneumomediastinum: a report of 25 cases. Chest 1991; 100: 93-5. [CrossRef]
10. Newcomb AE, Clarke CP. Spontaneous pneumomediastinum:a benign curiosity or a significant problem? Chest 2005; 128: 3298-302. [CrossRef]
11. Patel N, Lazow S, Berger J. Cervico facial subcutaneous emphysema; case report and review of literature. J Oral Maxillofac Surg 2010; 68: 1976-82. [CrossRef]