International Journal of Reproduction, Contraception, Obstetrics and Gynecology
Gentile M et al. Int J Reprod Contracept Obstet Gynecol. 2020 Apr;9(4):1735-1737
www.ijrcog.org
pISSN 2320-1770 | eISSN 2320-1789

DOI: http://dx.doi.org/10.18203/2320-1770.ijrcog20201256

Case Report

Hamman's syndrome: a case report of spontaneous pneumomediastinum after vaginal delivery

Marco Gentile[1]*, Mariaconcetta Zinna[1], Antonio Costanza[1], Andrea Remo[2], Giuseppe Sala[3], Pietro Catapano[1]

[1]Obstetrics and Gynecology Unit, Surgical Department, ULSS 9 "Scaligera", Verona, Italy
[2]Pathology Unit, Service Department, ULSS9 "Scaligera", Verona, Italy
[3]Radiology Unit, Service Department, ULSS9 "Scaligera", Verona, Italy

Received: 30 January 2020
Revised: 16 February 2020
Accepted: 28 February 2020

***Correspondence:**
Dr. Marco Gentile,
E-mail: marco-gentile@hotmail.it

ABSTRACT

Spontaneous pneumediastinum (Hamman's syndrome) is a rare pathology defined as the presence of free air in the mediastinum with subcutaneous emphysema without trauma or medical problem. It is also a rare complication of labour and delivery and it usually occurs in the second stage of labour. A twenty-six-year-old primigravida presented to our hospital at 39 weeks and 6 days in spontaneous labour. Two hours following the delivery the patient developed neck tightness and chest tenderness with palpation. Chest X-ray and CT scan revealed pneumomediastinum extending into the soft tissue of the neck. A conservative management was performed. Spontaneous pneumomediastinum is a rare condition with a reported incidence of less than 1:44000 and in the setting of pregnancy or labor 1:100000. Regarding pregnancy, the valsalva maneuvers produced in the second stage of labor has been implicated in the development of spontaneous pneumomediastinum. Chest X-ray (posteroanterior and lateral view) is the most important test to confirm the diagnosis. The Hamman's syndrome has usually a benign course and the management in often conservative. A timely diagnosis of Hamman's syndrome is necessary for patient safety and correct management, but most cases have a self-limiting course.

Keywords: Delivery, Hamman, Pneumomediastinum, Postpartum

INTRODUCTION

Spontaneous pneumediastunum (Hamman's Syndrome) is a rare pathology first described by Hamman in 1939.[1] It is defined as the presence of free air in the mediastinum with subcutaneous emphysema without trauma or medical problem.[2,3] It can be associated with a crunching sound synchronous with the heartbeat and it is called "Hamman's sign".[4] Hamman's syndrome can occur in conditions that increase intrathoracic pressure, as example trauma, acute asthma attack, pulmonary infections, esophageal rupture.[5] It is also a rare complication of labour and delivery and it usually occurs in the second stage of labour.[6] Symptoms usually appear in the immediate postpartum period and they are acute chest pain, shortness of breath, neck swelling and surgical emphysema.[7] This case present a spontaneous pneumomediastinum in a patient who had difficult vaginal delivery.

CASE REPORT

A twenty-six-year-old primigravida presented to our hospital at 39 weeks and 6 days in spontaneous labour. She was non-smoker and she had a BMI of 31 kg/m^2. She denied drinking alcohol or using drugs. In the past she

had tonsillectomy and adenoidectomy without complications. She had not medical pathologies and she was taking only prenatal vitamins. Seven hours after the onset of labour she progressed to full dilatation, with vertex presentation. The second stage of labour was prolonged requiring vacuum assistance for delivery of a 3580-gr baby. Two hours following the delivery the patient developed neck tightness and chest tenderness with palpation. She had not dyspnea or palpitation, her blood pressure was 110/70 mmHg, pulse was 73/minute and oxygen saturation were 98% on the air. The EKG was normal. On auscultation chest was clear and on physical examination crepitus was felt under the chest and neck skin, with diagnosis of subcutaneous emphysema. A chest X-ray revealed pneumomediastinum extending into the soft tissue of the neck (Figure 1). The CT scan confirmed pneumomediastinum with subcutaneous emphysema without signs of pneumothorax (Figure 2). Esophagogastroduodenoscopy was performed but the result was negative for esophageal perforation. A conservative management was performed (bed rest, antibiotics, analgesics), the patient was observed for 5 days and she repeated a chest X-ray after 20 days with complete resolution of pathology (Figure 3).

Figure 1: Chest X-ray after delivery.

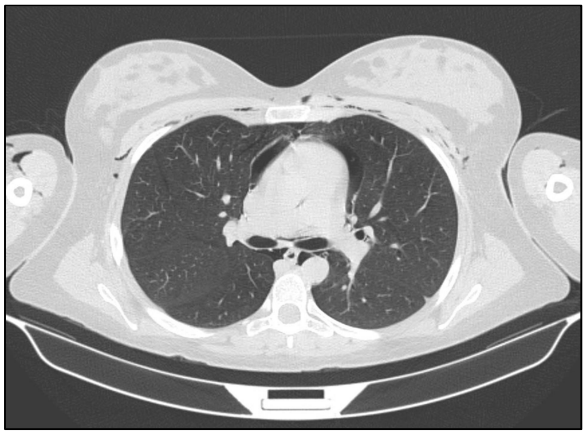

Figure 2: CT scan after delivery.

Figure 3: Chest X-ray at 20 days after delivery.

DISCUSSION

Spontaneous pneumomediastinum is a rare condition with a reported incidence of less than 1:44000 and in the setting of pregnancy or labour 1:100000.[8] The formation of pneumomediastinum is a linear process beginning with alveolar ruptures, leading to air dissecting along bronchovascular sheaths and culminating with the spread of interstitial emphysema into the mediastinum. Regarding pregnancy, the valsalva maneuvers produced in the second stage of labour has been implicated in the development of spontaneous pneumomediastinum. The most widely accepted theory implicates the rupture of marginal pulmonary alveoli as a result of repetitive pushing during labour, over inflation of the lungs and high intra-alveolar pressure.[9,10] The air dissects into mediastinum and migrates along the fascial planes into the subcutaneous tissues.[11-13] In a recent literature review Narcisse analyzed some pregnant patient charateristics.14 The Hamman's syndrome in pregnancy was typically seen in young patients (average age 23.4±5.7 years of age), the majority of patients were primiparas (58.8%), the average length of pregnancy was 39.04±2.94 weeks. The most commonly reported symptoms were swelling and subcutaneous emphysema (face, neck, etc.), dyspnea, chest pain, crepitus. Chest X-ray (posteroanterior and lateral view) is the most important test to confirm the diagnosis. Chest CT is required if the standard chest X-ray is not helpful. Arterial blood gas analysis can be detecting the eventual degree of hypoxia. ECG is normal in the majority of spontaneous pneumomediastinum cases.[7] In the setting of severe vomiting, esophageal rupture should be ruled out and this can be done with esophagogram or with diagnostic endoscopy.[15]

The Hamman's syndrome has usually a benign course and the management is often conservative. The majority of patients are treated with analgesics, bed rest, oxygen therapy, bronchodilators, antibiotics. Complications are very rare but a correct management of this condition is

important to prevent some of them, as malignant pneumomediastinum, circulatory failure and death.[7,14] Follow-up period of these patients should be at least 24 to 36 hours.[16]

CONCLUSION

Spontaneous pneumomediastinum is a very rare complication of labour. The second stage of labour is commonly associated with the development of Hamman's syndrome. A timely diagnosis is necessary for patient safety and correct management, but most cases have a self-limiting course.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

REFERENCES

1. Hamman L. Spontaneous mediastinal emphysema. 1939. Bull Johns Hopkins Hosp. 1939;64:1-21.
2. Beynon F, Mearns S. Spontaneous pneumomediastinum following normal labour. BMJ Case Rep. 2011;2011:bcr0720114556.
3. Bilgin M, Kahraman C, Akcali Y. Spontan pnomomediasten. Toraks Dergisi. 2003;4:183-5.
4. Hamman L. Spontaneous Interstitial emphysema of the lungs. Trans Amer Ass Phys. 1937;52:311.
5. Panacek EA, Singer AJ, Sherman BW, Prescott A, Rutherford WF. Spontaneous pneumomediastinum: clinical and natural history. Ann Emerg Med. 1992;21(10):1222-7.
6. Duffy BL. Post-partum pneumomediastinum. Anaesth Intens Care. 2004;32(1):117-9.
7. Cho C, Parratt JR, Smith S, Patel R. Spontaneous pneumomediastinum (Hamman's syndrome): a rare cause of postpartum chest pain. BMJ Case Rep. 2015;2015:bcr1220103603.
8. Macia I, Moya J, Ramos R, Morera R, Escobar I, Saumench J, et al. Spontaneous pneumomediastinum: 41 cases. Eur J Cardiothorac Surg. 2007;31(6):1110-4.
9. Crean PA, Stronge JM, FitzGerald MX. Spontaneous pneumomediastinum in pregnancy. Case report. Br J Obstet Gynaecol. 1981;88(9):952-4.
10. Macklin M, Macklin C. Malignant interstitial emphysema of the lungs and mediastinum as an important occult complication in many respiratory diseases and other conditions: interpretation of the clinical literature in the light of laboratory experiment. Med. 1944;23:281-358.
11. Mahboob A, Eckford SD. Hamman's syndrome: an atypical cause of postpartum chest pain. J Obstet Gynaecol. 2008;28(6):652-3.
12. Bonin MM. Hamman' syndrome (spontaneous pneumomediastinum) in a parturient: a case report. J Obstet Gynaecol Can. 2006;28(2):128-31.
13. Majer S, Graber P. Postpartum pneumomediastinum (Hamman's syndrome). CMAJ. 2007;177(1):32.
14. Amine NO, Lomiguen CM, Iftikhar A, Sahni S. Pregnancy-associated spontaneous pneumomediastinum: a contemporary review. Cureus. 2018;10(10):e3452.
15. Khurram D, Patel B, Farra MW. Hamman's Syndrome: a rare cause of chest pain in a postpartum patient. Case Rep Pulmonol. 2015;2015:201051.
16. Sızlanan A, Akçay O. Pneumomediastinum after difficult vaginal delivery. Turk Thorac J. 2016;17(2):76-8.

Cite this article as: Gentile M, Zinna M, Costanza A, Remo A, Sala G, Catapano P. Hamman's syndrome: a case report of spontaneous pneumomediastinum after vaginal delivery. Int J Reprod Contracept Obstet Gynecol 2020;9:1735-7.