

The development of subcutaneous emphysema after delivery on a specially designed chair

W. A. A. Tjalma, M.D., Ph.D.; C. M. A. J. Eelen, M.D.

Departments of Obstetrics and Gynaecology, University Hospital Antwerp and the General Hospital Saint Augustinus, Antwerp (Belgium)

Summary

A case of a 23-year-old woman, with an uncomplicated term pregnancy, who developed subcutaneous emphysema 12 hours after the delivery on a specially designed chair is reported. Subcutaneous emphysema is an uncommon delivery complication, with a favourable outcome. The pathophysiology and treatment modalities of this rare phenomenon are discussed.

Key words: Vaginal delivery; Subcutaneous emphysema; Labour complications; Treatment.

Introduction

Subcutaneous emphysema following vaginal delivery is rare, with an incidence ranging from 1:2,000 to 1:100,000 deliveries [1-3]. However, it should be considered in women immediately postpartum who complain of neck or chest pain, shortness of breath or swelling of neck or chest [4]. In this report we describe the onset of subcutaneous emphysema after delivery on a specially designed delivery chair.

Case Report

A 23-year-old woman, gravida 2, para 1, had an uncomplicated pregnancy and no history of pulmonary disease or asthma. She entered the delivery unit in labour at 40 weeks of pregnancy. The membranes ruptured spontaneously and after five hours she had full dilatation. In the second stage the patient pushed vigorously while sitting on the specially designed delivery chair but after 30 minutes the foetal heart rate became bradycardiac. Therefore, in order to prevent foetal asphyxia, a vacuum extraction was performed. After two tractions a female baby weighing 3,620 grams was born (Apgar 7/9; 1 and 5 minutes, respectively). Twelve hours after the delivery the patient was complaining of a sore throat and swelling on the right side of the neck was noticed. Clinical examination revealed swelling of the chest from above both clavicles with an extension to the right side of the neck and cheek. The affected area was crepitating on palpation. There were no signs of cyanosis or dyspnoea and all vital signs were stable. The breathing sounds were clear and there was no sign of Hamman's syndrome. A chest radiograph showed only subcutaneous emphysema in the neck, but no signs of a pneumothorax. A control chest X-ray on the second day postpartum showed no difference. The physical situation also remained stable and after three days the air in the neck area slightly resolved. She was discharged on the fifth day with only very mild subcutaneous emphysema.

Discussion

The development of subcutaneous emphysema after delivery has probably been known for centuries. One of the first descriptions was made by a French Queen's midwife Louise Bourgeois who wrote in 1618: "she tried to stop crying out and I implored her not to stop for fear that her neck might swell".

The development of subcutaneous emphysema is probably due to the rupturing of a terminal alveolus, allowing air to escape toward the mediastinum and into the neck. Another possibility is a small pharyngeal rupture. Most likely the rupturing occurs during the second stage of labour due to the valsalva manoeuvre associated with the position in the delivery chair and the intense pushing. In this case there was no sign, either physically or radio-

graphically, of a pneumomediastinum. The symptoms that accompany a pneumomediastinum are the aforementioned subcutaneous emphysema but also chest pain, dyspnoea, anxiety, palpitations and sometimes haemoptysis. Clinically the areas of subcutaneous emphysema can be palpated (crepitations) on the upper thorax, neck and face. Pathognomic for a pneumomediastinum is Hamman's sign, although not always observed in obstetric cases [1, 5]. A chest X-ray is usually enough to confirm the diagnosis. The differential diagnosis for an obstetric patient with chest pain should also include embolism of amniotic fluid or thrombus, myocardial infarction, pneumothorax, toxic effects of injected drugs, aortic dissection, cardiac tamponade, angina pectoris and mediastinitis [1, 6].

When the diagnosis of subcutaneous emphysema is made during labour strict foetal monitoring is indicated. The treatment should be based on relieving the symptoms (oxygen, analgesia and sedatives) and a forceps or vacuum extraction is recommended to avoid further development of the emphysema [1]. A proper pushing skill may well prevent the development of subcutaneous emphysema. However the very rare appearance of subcutaneous emphysema and the wrong pushing technique of thousands of women does not support this theory. A possibly better way of prevention is to perform an assisted delivery for the next baby. Postpartum management should be based on relieving the symptoms. Conservative management is mostly sufficient and only in severe cases of pneumothorax or pneumomediastinum is urgent treatment indicated.

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Address reprint requests to:

W. A. A. TJALMA, M.D., Ph.D.
Department of Obstetrics and Gynaecology
University Hospital of Antwerp
Wilrijkstraat, 10 - 2650 Edegem (Belgium)

Revised manuscript accepted for publication June 8, 2001