Case reports

A commentary on the following two case reports appears on pp 340-1.

Treatment of pneumothorax during pregnancy

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Abstract

Pneumothorax during pregnancy is rare. A case report is presented and a novel way of managing the problem is discussed.

(Thorax 1996;51:338-339)

Keywords: pregnancy, pneumothorax, flutter bag.

Pneumothorax rarely occurs during pregnancy. We present a case of this uncommon entity and show how the problem can be easily managed without recourse to surgery before term.

Case report

A 26 year old woman presented to her maternity centre with chest pain. She was 32 weeks pregnant, had no past medical history of note, and was a non-smoker. Examination suggested a large left sided pneumothorax which was confirmed by chest radiography. This was drained with an appropriately placed intercostal drain and the lung re-expanded. The drain stopped bubbling and was removed three days after insertion. With two hours of removal the woman again complained of chest pain and repeat chest radiography revealed another pneumothorax.

She was transferred to the regional thoracic surgical centre where another chest drain was inserted and the lung was again re-expanded. The drain kept bubbling. A "flutter" bag, a device incorporating a one way valve (figure), was connected to the drain and the woman was allowed home. The same drain remained in situ for seven weeks with no episodes of local infection. She was reviewed regularly as an outpatient and at 39 weeks gave birth. She was again transferred to the regional thoracic centre and five days after delivery underwent a left pleurectomy and ligation of a large apical bleb. The patient made an uneventful postoperative recovery.

Discussion

Only 15 isolated spontaneous pneumothoraces during pregnancy have been reported up to 1990,¹ but this probably represents an underestimate of the true incidence.^{2,3} Some underlying risk factors for spontaneous pneumothorax are usually present. Most patients develop the pneumothorax in the last trimester or during labour, whilst the remainder develop during the first trimester.¹

The aetiology of most of the pneumothoraces operated upon in relation to pregnancy is rupture of apical blebs. Many alterations occur in respiratory physiology during pregnancy; minute ventilation, tidal volume, and respiratory rate increase (due to raised progesterone levels) leading to a 70% increase in alveolar ventilation.⁴ This "accelerated" respiratory pattern may well stress subpleural apical blebs leading to rupture.²

Treatment of pneumothorax during pregnancy is controversial. In the first instance drainage with tube thoracostomy is indicated. In the patient at or near term with normal fetal maturity, induction of delivery with, if necessary, forceps assistance may be carried out⁵ with definitive treatment of the pneumothorax after delivery. A caesarian section can be safely carried out with chest drains in situ. In preterm patients the short term recurrence rate is high⁵ as was seen in our patient. Definitive operative treatment has been advocated in all patients except those in the first eight weeks of pregnancy,³ even though it is standard practice to avoid general anaesthesia and surgery in the pregnant patient. "Long term drainage" has previously been considered to be dangerous due to the risk of empyema.⁵ The use of long term drainage with a flutter bag is well tolerated by patients. We found no problem in managing a pregnant patient as an outpatient with an intercostal drain for a total of eight weeks, nor were there any signs of infection at the drain site or in the pleural cavity at operation. We thus consider the use of pro-

Diagrammatic representation of Portex "flutter" bag.

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longed intercostal drainage as a temporising measure for spontaneous pneumothorax in late pregnancy to be safe and effective.

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Pneumomediastinum secondary to use of a high speed air turbine drill during a dental extraction

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Abstract

Pneumomediastinum and subcutaneous emphysema of the neck and thorax can occur exceptionally following a dental procedure. A case is described of acute subcutaneous emphysema of the lateral region of the neck and thorax associated with pneumomediastinum during a dental extraction with an air and water cooled turbine burn drill.

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Keywords: subcutaneous emphysema, pneumomediastinum, dental surgery.

Subcutaneous and mediastinal emphysema have occasionally been reported after various dental and oral surgical procedures such as endodontic therapy, dental extraction, and facial fracture.¹ Nevertheless, the occurrence of these conditions after dental treatment with compressed air equipment is rare.^{2,3}

Case report

A previously well 29 year old man was referred from a dental clinic with acute severe retrosternal pain, dyspnoea, sensation of discomfort, and a sudden swelling around the eyes and over the cheeks, neck, and anterior chest wall following a dental extraction of the lower right third molar with the use of a high speed air turbine drill (250 000 rpm, 4-5 bars air pressure). The patient did not have any pre-existing lung disease nor chest problems. Physical examination revealed major facial and thoracic subcutaneous emphysema. There was no evidence of airway, oesophageal, or abdominal injury. His vital signs on presentation to the hospital showed a blood pressure of 130/90 mm Hg, heart rate of 115 beats per minute, respiratory rate of 18 breaths per minute, and temperature of 36.8°C. His voice was "brassy". His white blood cell count, haematocrit, and

blood biochemical profile were normal, as was the electrocardiogram. The chest radiograph showed pneumomediastinum and subcutaneous emphysema with mediastinal air dissecting into the neck and supradiaphragmatically. A pneumothorax, however, was not present. An oesophageal contrast study using Gastrografin was performed to exclude any lesion of the aerodigestive tract which showed no abnormalities. A conservative approach was adopted with parenteral nutrition, no oral feeding, and empirical antibiotic therapy with clindamycin 600 mg and gentamicin 100 mg, both intravenously, every eight hours. The mediastinal air disappeared by the fifth day and the patient was discharged well on day 7.

Discussion

Subcutaneous and mediastinal emphysema is a well recognised entity after trauma or any surgical procedure of the respiratory and alimentary tracts, anaesthetic measures, infections with gas-forming bacteria, and it may also occur spontaneously.^{4,5} Mediastinal emphysema associated with a dental procedure was first reported in 1900 by Turnbull. Iatrogenic mediastinal emphysema may result from inappropriate use of dental equipment powered by highly compressed air. The high speed dental drill and the air and water dental syringe are the instruments most frequently involved in these cases.^{6,7}

The roots of the first, second, and third molars communicate directly with the sublingual and submandibular spaces. The sublingual space is also in communication with the pterygomandibular, parapharyngeal, and retropharyngeal spaces. The pressurised air may enter the gums beneath the periosteum of the mandible and dissect through the cervical facial planes into the mediastinum.⁵⁻⁹

Mediastinal emphysema caused by the introduction of air with the use of a high speed air turbine drill is usually harmless but complications including infection, pneumothorax, pneumopericardium, air embolism, pneumoperitoneum, and orbital emphysema with optic nerve damage have occasionally been reported.¹⁰ Because there is a potential for mediastinitis, antibiotic therapy is recommended.⁷⁻¹⁰ Urgent surgical decompression may be required if cardiovascular collapse or large airway obstruction occurs.

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