

A Case report of Subcutaneous Emphysema following a normal delivery

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Introduction: Subcutaneous emphysema is the medical term for air becoming trapped in tissues beneath the skin. The condition is rare, but it can occur as a result of trauma, injury, infection, or certain medical procedures. Also referred as crepitus, tissue emphysema, or subcutaneous air. The condition is rare. Development of subcutaneous emphysema may indicate that air is occupying another deeper area within the body not visible to the unaided eye.

Case History: Thirty-year low risk Primigravida, had a waterbirth in our midwife led unit. She was a nonsmoker. She used Entonox as labour analgesia. Patient C/O feeling swelling of face, difficulty in swallowing and sore throat a few hours after delivery. She also C/O feeling of crackling sensation on upper chest and face. No C/O and SOB, chest pain or palpitations. No H/O any allergies and no visible rash.

O/E: No tachypnoea; no flaring of alae nasii or use of accessory muscles of respiration. She was able to speak normally.

Palpation: Distinct crepitations were felt on upper chest , neck and face below the skin.. Face was swollen up(as per patient it was more swollen immediately following delivery).

Auscultation of Chest: Bilateral normal air entry with vesicular breath sounds. No crepitations or rhonchi were heard.

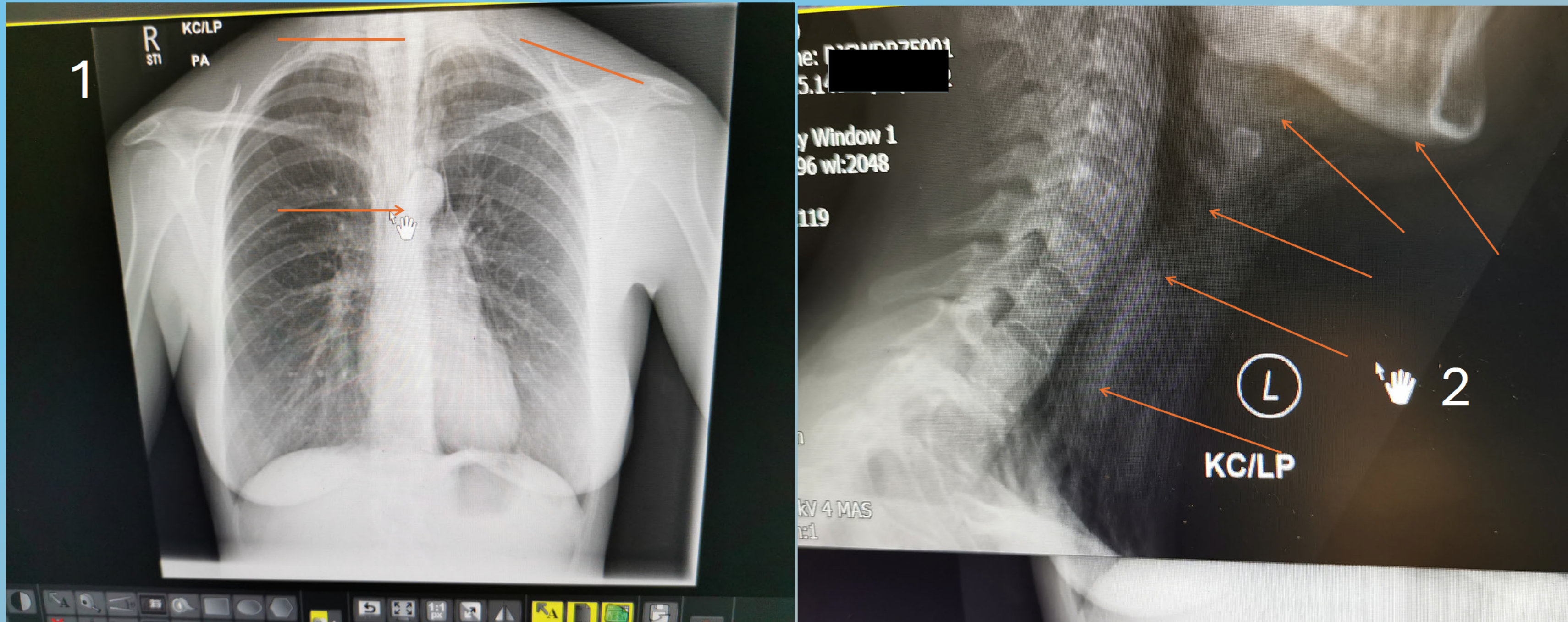
Diagnosis of subcutaneous emphysema was made secondary to active pushing in labour.

Investigations: ECG, Chest X Ray and X Ray soft tissues of neck.

Subcutaneous emphysema was confirmed on X Ray but no pneumothorax was identified. ECG was normal .

Management: Conservative management was done with O2 inhalation and monitoring of vitals. Patient made a full recovery over the next 48 hours. Patient was debriefed of the condition and discharged home with reassurance of no increased risk of recurrence in future pregnancies.

Discussion: It was first mentioned in 1618 by Louise Bourgeois, midwife to the Queen of France.



1) Chest X Ray

2) X Ray Neck Lateral view

Louis Hamman (1945) first described postpartum pneumomediastinum in association with subcutaneous emphysema. This condition, also referred to as Hamman's syndrome, is rare, with only about 200 cases reported worldwide, with an estimated incidence of **1 in 2000 to 1 in 100,000 vaginal deliveries**.

It usually occurs in the second stage of labour; it is often clinically apparent in postpartum phase. The prolonged Valsalva manoeuvre (straining with the glottis closed) during the second stage of labour as well as the screaming leads to a rupture of marginally situated alveoli into the pulmonary interstitial space, with tracking of air along the broncho vascular connective tissue planes towards the hilum and mediastinum.

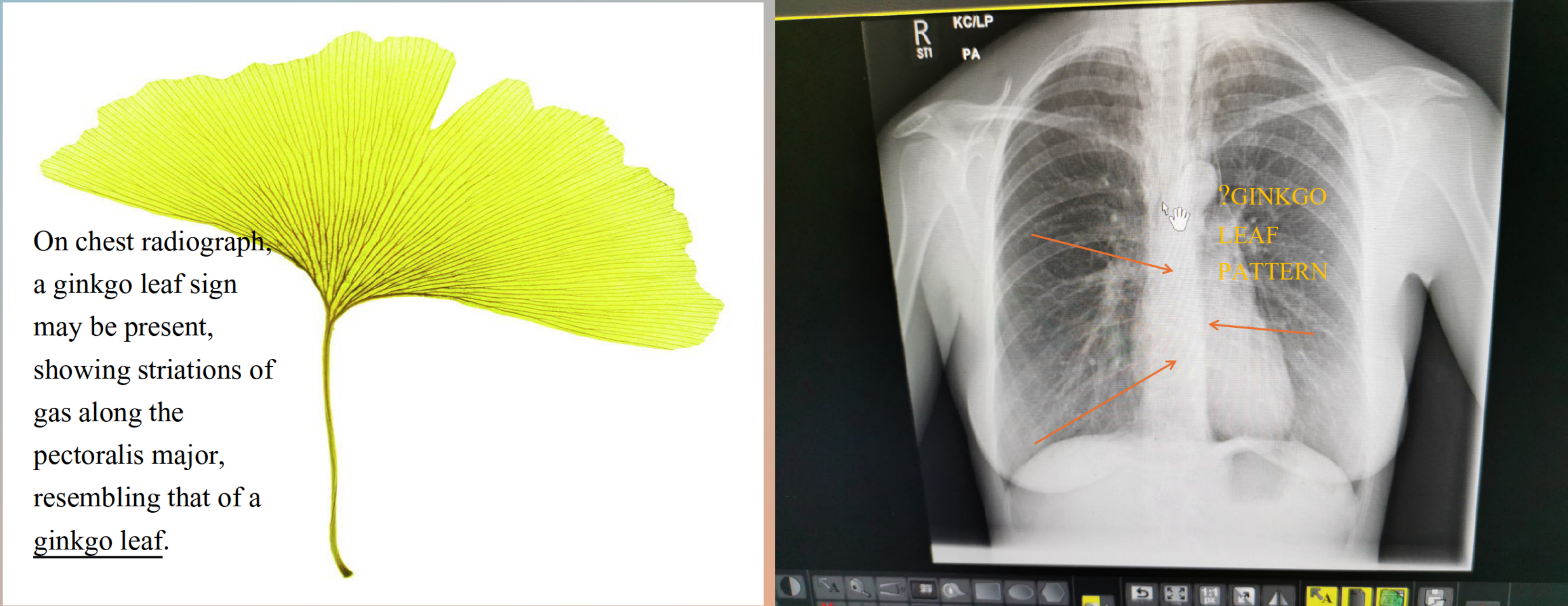
Subcutaneous emphysema results when air escapes from the mediastinum into the subcutaneous and deep tissues of the neck

Presenting symptoms of pneumomediastinum: retrosternal chest pain, dyspnoea, pleurisy, facial and neck pain, change in voice; odynophagia, or dysphagia. Cyanosis, venous congestion and signs of cardiac tamponade are rare and would be present only if pneumopericardium or a tension pneumothorax had occurred,

Since pneumomediastinum is extremely rare, it is essential to exclude pulmonary embolism, amniotic-fluid embolism, myocardial infarction, pneumothorax, and aortic dissection before making this unusual diagnosis.

Predisposing factors: Smoking; Cocaine and Ecstasy abuse; Corticosteroids; Prolonged labour in 2nd stage; Entonox inhalation; H/O COPD/ Emphysema;

D/D: Allergic reactions and Angioedema – lip sparing effect in Subcutaneous emphysema; Oesophageal rupture; Pneumothorax; Tracheal/bowel/diaphragm perforation; Necrotising infections; Barotrauma;



Management: Hamman’s syndrome is a self-limiting condition unless there is an underlying respiratory disease. In the absence of pneumothorax, Hamman’s syndrome should resolve with a conservative treatment. The prognosis is usually good.

In cases of rapid and extensive gas expansion, it can be life-threatening.

Massive subcutaneous emphysema can cause compartment syndrome, prevention of thoracic wall expansion, tracheal compression, and tissue necrosis. In these dreaded complications without intervention, respiratory and cardiovascular compromise can occur.

Prevention: Use of Nitrous Oxide increases the risk of gas trapping and risk of pneumomediastinum. Entonox is contraindicated. Epidural anaesthesia may be discussed to avoid premature pushing in late first/early second stage of labour. To cut short the 2nd stage of labour if subcutaneous emphysema/pneumomediastinum is suspected to prevent prolonged strenuous pushing.

Future Pregnancies: Reassurance to be given about no increased risk of recurrence in future pregnancies. To offer epidural analgesia during future labour. To avoid Entonox inhalation as labour analgesia.

References: 1) Lou YY; Hamman’s syndrome: spontaneous pneumomediastinum and subcutaneous emphysema during second stage of labour; International Journal of Reproduction, Contraception, Obstetrics and Gynaecology, 2017 Jun:6(6):2622-2624
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