# Two cases of Hamman's Syndrome with follow through to subsequent deliveries

Here I report **two cases** in primiparous women who both developed **Hamman's Syndrome** postpartum with their first deliveries and have been followed through to their second deliveries. The women both received antenatal care and postnatal care at the same level 4 suburban maternity care unit for both of their pregnancies.

## Case 1

### Pregnancy 1

28yo G1P0 40+1
PMH - Nil
Significant antenatal events - Nil

### Labour

- Spontaneous
  - 1st stage - 6 hours, nitrous oxide, significant vomiting
  - 2nd stage - 2 hours, ventouse delivery, 3.7kg baby
  - 3rd stage - active + additional ergometrine, EBL 400ml

### Postpartum Signs + Symptoms

12 hours postpartum – crackling sensation under left jaw and ear
Later developed sore throat and dyspnoea
Examination - Subcutaneous emphysema noted localised to neck
Obs - normal

### Management + Investigation

CXR - subcutaneous emphysema
Discussed with cardiothoracic team - Advised CT with contrast
CT - pneumomediastinum noted with subcutaneous gas (see image), no pneumothorax or obvious oesophageal tear noted

Initially 24 hours IV antibiotics given to cover possible mediastinitis

### Progress

Conservatively managed
Day 4 - Discharged
Day 9 - Symptoms resolved

### Pregnancy 2

3 years following first pregnancy
Antenatal care:
- Obstetric medicine review
- Echocardiogram due to symptoms of dyspnoea - Normal findings
- Advised to avoid prolonged 2nd stage

### Labour

- Spontaneous @39+3
  - 1st stage - 4 hours
  - 2nd stage - 10 mins, NVD, 3.8kg baby
  - 3rd stage - active

Postpartum signs and symptoms - nil

### Progress

- No recurrence
- Discharged day 2

## Case 2

### Pregnancy 1

22yo G1P0 38+0
PMH - Type 1 Von Willebrands
Significant antenatal events - SOB + palpitations @28 weeks
→ Leg dopplers and V/Q scan performed - normal appearance

### Labour

- Spontaneous
  - 1st stage - 2 hours
  - 2nd stage - 25 mins, NVD, 3.1kg baby
  - 3rd stage - active third stage + synto infusion and misoprostol, EBL 450m1

### Postpartum Signs + Symptoms

1 hour postpartum - pleuritic chest pain and palpitations

Examination - normal findings Obs - tachycardia HR120, otherwise normal

### Management + Investigations

ECG - sinus tachycardia, Toponins negative
CXR - subcutaneous emphysema
CTPA - extensive pneumomediastinum with subcutaneous emphysema noted extending to fascial planes of the neck, no PE or pneumothorax
CT + oral contrast - no evidence of oesophageal rupture

### Progress

Conservatively managed
Day 3 - Symptoms resolved
Day 3 - Discharged

### Pregnancy 2

4 years following the first pregnancy
Antenatal care:
- DNA Obstetric medicine review
- Advised to consider early assisted delivery + avoid prolonged pushing in the 2nd stage

### Labour

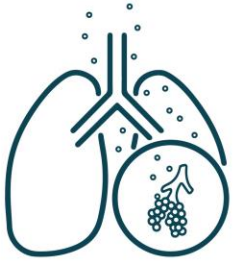
- Spontaneous @38+5
  - 1st stage - 2 hours, epidural
  - 2nd stage - 2 hours 30 mins, patient declined assisted delivery, 2 hour passive decent and 30mins gentle pushing, 3.3kg baby
  - 3rd stage - active

Postpartum signs and symptoms - nil

### Progress

- No recurrence
- Discharged day 1

## The Macklin Effect



Barotrauma due to forced Valsalva occurring in the second stage of labour is likely to be responsible for rupture of alveoli [2]. This allows gases to travel into the mediastinum and then track superiorly into subcutaneous spaces of the neck resulting in subcutaneous emphysema [3] - known as the Macklin effect.

## CT Scan - Case 1 Pregnancy 1


- Pneumomediastinum with subcutaneous gas extending into the anterior upper neck
- no evidence of pneumothorax or oesophageal tear

## Discussion

Hamman's syndrome is the development of spontaneous pneumomediastinum and subcutaneous emphysema, first reported in 1939 by American physician Louis Hamman[1].

Signs and symptoms most commonly experienced are subcutaneous emphysema, tachycardia, chest pain, dyspnoea, and throat discomfort [4,5].

Hamman's syndrome is thought to be uncommon occurring in only 1 in 100000 vaginal deliveries [6]. It has been suggested that it is more common in primiparous women [7]

The diagnosis of Hamman's syndrome is made by thorough examination and a chest x-ray. CT scan may also be used as chest x-ray may fail to identify 30% of pneumomediastinum [8].

In the absence of more serious disease such as pneumothorax, cardiac tamponade or oesophageal rupture the preferred treatment is conservative as the natural course of Hammans syndrome is thought to be benign with subcutaneous air being gradually reabsorbed. [7]

The above reported cases provides a unique addition to the limited case reports on this subject. The cases above provided support to the existing case reports that suggest Hammans syndrome may be more prevalent in primiparous women. They also provide support that recurrence rates may be low and that conservative management is likely all that is required in the haemodynamically stable patient.

Although an uncommon occurrence it is nevertheless a useful addition to the differential diagnosis for the obstetrician and midwife to be aware of in a patient experiencing chest pain, dyspnoea or throat discomfort intra or postpartum.

## References


1. Hamman L, Spontaneous mediastinal emphysema, Bulletin of the Johns Hopkins Hospital,1939; 64: 1–21.
2. Jayran-Nejad Y, Subcutaneous emphysema in labour. Anaesthesia, 1993 Feb; 48(2): 101-182.
3. Mahboob A, Eckford SD, Hamman's syndrome: an atypical cause of postpartum chest pain. J Obstet Gynaecol, 2008; 28: 652-653
4. Panacek E, Singer A, Sherman B, Prescott A, Rutherford W, Annals of Emergency Medicine, 1992 Oct; 21(10): 1222-1227
5. Amine N, Lomiguen C, Iftikhar A, Sahni S, Pregnancy-associated Spontaneous Pneumomediastinum: A Contemporary Review. Cureus, 2018 Oct; 10(10): e3452. Published online 2018 Oct 15. doi: 10.7759/cureus.3452
6. Karson EM, Saltzman D, Davis MR, Pneumomediastinum in pregnancy two case reports and a review of the literature, pathophysiology and management. Obstet and Gynaecol, 1984; 84: 395-435
7. Dudley D, Patten D, Intrapartum pneumomediastinum associated with subcutaneous emphysema. CMAJ, 1988 Oct 1; 139(7): 641–642
8. Elshirif A, Tyagi-Bhati J, Postpartum pneumomediastinum and subcutaneous emphysema (Hamman's Syndrome). Published online Apr 2015. doi: 10.15761/CCRR.1000115


**Hamman's syndrome** is the development of spontaneous pneumomediastinum and subcutaneous emphysema, it was first reported in 1939 by American physician Louis Hamman[1].


Dr Mark Claydon
**Caboolture Hospital**