

## Post partumpneumomediastinum (Hamman syndrome): A case report

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### Abstract

Excessive pushing and valsalva during labour is associated with subcutaneous emphysema and pneumomediastinum during labour and post partum. Although rare but is a potentially serious complication that must be identified and managed appropriately to avoid its rare consequence called malignant pneumomediastinum, requiring surgical intervention.

A 30 year old, primigravida, presented to a tertiary care hospital with complaints of shortness of breath of 4 days duration after a normal vaginal delivery. CT chest showed bilateral consolidation and pneumomediastinum. She was managed conservatively with supportive measures and was clinically stable before being discharged on request to a nearby health facility. On follow up complete resolution of pneumomediastinum was reported.

Recognition of post partum pneumomediastinum, its presentation and associated complications need to be acknowledged in a tertiary care hospital, with proper management. Although the condition is rare, but in subsequent pregnancies physicians need to be cautious, and instrumental delivery or caesarean section may be considered to avoid excessive valsalva. No definite evidence of recurrence has been proven.

**Keywords:** Postpartum, Pneumomediastinum, Subcutaneous emphysema.

### Case Report

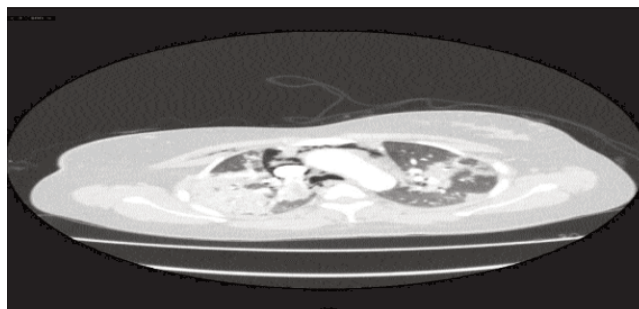
Shifa International Hospital, Islamabad, is a tertiary care facility with patients being referred from all over the country for better management due to the advanced imaging facilities and treatment options.

Our patient, a 30 year old primigravida, was referred to our hospital from a peripheral health centre on 9th January 2016 with complaints of shortness of breath 4 days after a normal vaginal delivery, she was suspected to have pulmonary embolism and was sent here for confirmation and management. On arrival in

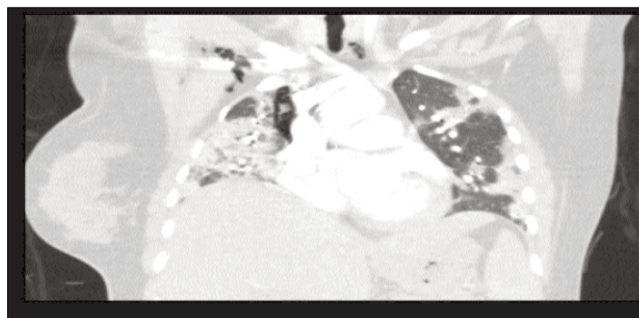
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**Figure-1:** Coronal spot image of CT Pulmonary angiogram showing bilateral patchy consolidations, pneumomediastinum and subcutaneous emphysema in right hemithorax.



**Figure-2:** Axial spot image of CT scan pulmonary angiogram showing bilateral patchy consolidations and pneumomediastinum. Subcutaneous emphysema can also be seen in the anterior chest wall of right hemithorax.

the emergency department she had complaints of shortness of breath, productive cough and two episodes of haemoptysis. On examination, she was tachypnoeic, unable to maintain O<sub>2</sub> saturation on room air, reduced air entry with bilateral crackles at lung bases. A palpable crepitus was felt at the anterior chest wall.

A CTPA chest was ordered to rule out pulmonary embolism, and other sinister pathologies before the diagnosis of Hamman's Syndrome was confirmed, such as amniotic fluid embolism, myocardial infarction and pneumothorax. It showed no evidence of thromboembolism, however there were bilateral consolidations, right more than the left (Figure-1) and pneumomediastinum (Figure-2).

The patient was in the medical step down and remained stable. She was treated with antibiotics and bronchodilator nebulizations along with oxygen support. She was discharged two days later on patients personal request to be transferred to the peripheral, near home health facility. Follow up correspondence was done on telephone and patient had recovered well, with a normal chest X-ray 4 days later.

## Discussion

Although many cases of spontaneous pneumomediastinum and subcutaneous emphysema were reported in many women, but a clear relationship was not established until 1945 by Louis Hamman (1877-1946), the physician who described pneumomediastinum in association with subcutaneous emphysema during pregnancy.

It has been postulated that patients with excessive hyperemesis may experience this phenomenon in the pre natal period, however most cases occur in the second stage of labour, with excessive straining and valsalva maneuvers specially in primigravidas with a prolonged labour, which clinically do not become symptomatic till the post partum phase.

Pathophysiology of Hamman's syndrome is theorized by the rupture of marginal alveoli with air entering into the mediastinum. This can occur secondary to increases in intra-alveolar pressure from the Valsalva manoeuvre (forced expiration against a closed glottis) associated with coughing, vomiting, screaming, or pushing in labour. Intrathoracic pressure may thereby increase up to a pressure of 50 cm of water. The increased intrathoracic pressure, in the presence of decreased vascular calibre, establishes a pressure gradient into the vascular sheath along which air can then dissect into the mediastinum. From the mediastinum, air migrates along fascial planes into the subcutaneous and retroperitoneal tissues.<sup>1</sup> It is now accepted that pneumothorax may coexist when air tracks between visceral and parietal pleura<sup>1</sup> although isolated tension pneumothorax may exist as a separate entity.

Isolated pneumomediastinum and subcutaneous emphysema is reported in almost all cases with a good

prognosis and an uneventful recovery on conservative management, however in a few cases before 1900 and in cases with tension pneumothorax, complications with mortality have been reported.<sup>2</sup>

Although the exact etiology has not been delineated but certain preventive measures in literature have been suggested to reduce its occurrence, such as use to epidural analgesia to reduce excessive straining and screaming and avoiding the use of Entonox<sup>3</sup> as it increases air entry into the alveoli. Adequate pain relief combined with instrumentation is suggested in high risk cases.<sup>1</sup>

Unfortunately in a third world country like ours, where the maternal mortality rate is already high and feto-maternal care services are highly deficient, the implementation of such preventive measures is not possible except in tertiary care setups like ours. The exact number of cases with Hamman's syndrome has also not been estimated in our region, due to under-diagnosed and under-reported patients mostly in the small peripheral basic health units.

## Conclusion

Post partum pneumomediastinum (Hamman's syndrome) is a rare complication however its timely diagnosis is necessary for patient safety and management.

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**Conflict of Interest:** None.

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