

## Mini Review

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# Pleural Diseases in Pregnancy: Aetiology and Management

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## ABSTRACT

Pleural diseases in pregnancy can cause considerable maternal and fetal morbidity and mortality. Some like pleural effusions may be small and pose little danger or massive causing significant respiratory compromise. Others like pneumomediastinum are rare in pregnancy but can be fatal. Emergency interventions may save lives. Such interventions may include peripartum caesarean section. The management of such conditions calls for the involvement of a multi-disciplinary team. Clinicians caring for pregnant women must always be well prepared to deal with any respiratory emergencies that may arise and be prepared to take prompt and bold decisions to give life-saving treatment.

**KEY WORDS:** Pleural diseases; Pleural effusions; Pneumothorax; Haemothorax; Peripartum caesarean section.

## INTRODUCTION

Pleural diseases in pregnancy can cause significant maternal and fetal morbidity and mortality. It is important that clinicians caring for pregnant women are well informed about these conditions so that they make early diagnosis and institute prompt treatment plans. Pleural effusions, pneumomediastinum and pneumothorax are known complications of pregnancy.<sup>1</sup> The other pleural conditions that can occur in pregnancy are empyema that can occur after a pneumonic spill and haemothorax<sup>2</sup> following a ruptured ectopic pregnancy. Pregnancy is a risk factor for pulmonary complications due to its immunosuppressive nature. Pulmonary symptomatology may be confused with normal physiological changes. Clinicians should maintain vigilance to differentiate pathology from normal physiology. Areas with a high prevalence of HIV/AIDS have high incidences of pleural diseases. HIV and pulmonary tuberculosis in pregnancy lead to a high chance of pleural disease complications. Careful multi-disciplinary team management involving the obstetricians, paediatricians, anaesthetists, pneumologists and thoracic surgeons in intensive care settings can save lives.

## AETIOLOGY

Pregnancy complicated by hyperemesis gravidarum can result in oesophageal perforation resulting in pneumomediastinum<sup>2,3</sup> and pleural effusions.<sup>4,5</sup> *In vitro* fertilisation techniques can complicate with severe ovarian hyperstimulation syndrome resulting in pleural effusions.<sup>6</sup> Metastatic disease may present with pleural effusions. Pulmonary tuberculosis can complicate with bilateral pleural effusions<sup>7</sup> as well as severe preeclamptic patients may also complicate with pleural effusions.<sup>8</sup> Spontaneous pneumothoraces can occur in pregnancy<sup>9-11</sup> and these may be recurrent.<sup>12</sup>

## CLINICAL PRESENTATION

The signs and symptoms may include dyspnoea, cough and chest pains. In pregnancy chest

symptomatology may be confused with normal physiology of pregnancy. Some patients may be asymptomatic. Clinical examination may reveal fever, tachycardia, tachypnoea and central cyanosis. Those patients with serious conditions may present with altered levels of consciousness. There could be dullness or resonance on chest percussion. On auscultation, there may be reduced or no air entry or coarse crepitations depending whether there is fluid or air in the pleural space. In cases of pneumomediastium there could be subcutaneous emphysema in the chest and neck. Some patients may present with respiratory distress with collapse.

## INVESTIGATIONS

Arterial blood gases may be normal or reveal hypoxemia and metabolic acidosis. A chest X-ray would be diagnostic in most of the diseases showing pneumothoraces, pleural effusions and pneumomediastinum. Ultrasography can detect pleural diseases such as pleural effusions, empyema or haemathoraces. Specimens obtained from ultrasound guided pleural aspiration/drainage must be sent for cytological, histological and microbiological assessments including tests for acid fast bacilli.

A computed tomography (CT) may reveal more information about the lesion showing fluid (pleural effusion) or air (pneumothorax) or septations (empyema). Magnetic resonance imaging (MRI) is now increasingly being used for assessment of lung conditions such as metastasis, lymphoma, lipoma, endometriosis and empyema.<sup>13</sup> It gives better clinical information on the extent of the disease and its relation to surrounding tissue structures.

## MANAGEMENT

Interventional pulmonology encompasses pleural interventions.<sup>14</sup> Conservative management of small pleural effusions may be appropriate. Empyema may be initially managed conservatively with antibiotics. Small tuberculosis pleural effusions may resolve with anti-tuberculosis chemotherapy. If medical treatment fails or the patient's condition deteriorates, surgical interventions would be appropriate. Patients with oesophageal perforation need emergency primary repair.<sup>5</sup> Those patients with a ruptured ectopic pregnancy would need an emergency laparotomy. In pregnancy, pneumomediastium is a rare condition but could be rapidly fatal hence urgent surgical intervention is needed. Urgent thoracostomy for patients in respiratory distress relieves pneumothoraces and haemothoraces while awaiting definitive treatment.<sup>10,15</sup> Pleurodesis could cause infection, lung punch and fibrosis.

Thoroscopic<sup>16</sup> treatment can be carried out such as video-assisted thoracic surgery for the treatment of empyema.<sup>17</sup> In cases of collapsed pregnant patients, a peripartum caesarean section may help deliver a live infant or help with the resuscitation of the mother and improving her chances of survival. The fetus may be premature and suffer complications associated with prematurity such as respiratory distress syndrome and may demise. Clinicians should be prepared to do this procedure as it could be life-saving. Patients may need intensive care management with ventilatory support.

Repeat imaging may be necessary to check resolution/recurrence of the condition. During the course of treatment it is important to continue to monitor the fetus with ultrasound scans/cardiocograms depending on the gestational stage. Serial growth scans would also be appropriate. The fetus may complicate with intrauterine growth restriction or intrauterine death if there is profound and prolonged maternal hypoxia. There is a risk of premature labour. Delivery would be by vaginally or by caesarean section depending on the severity of maternal health and obstetric factors.

## PROGNOSIS

The prognosis is good<sup>9</sup> for both the fetus and the mother provided the pulmonary disease is well treated and no further complications occur.

## CONCLUSION

Pleural diseases in pregnancy may threaten maternal and fetal lives. However, if the conditions are well managed by multi-disciplinary teams the outcomes may be favourable. It is incumbent upon clinicians caring for pregnant women to be alert to distinguish between pathology and normal physiology in pregnancy so that pregnant patients receive appropriate timely interventions. Repeat clinical examinations and imaging are needed to check for disease resolution or recurrence.

## AUTHOR CONTRIBUTION

This is the sole work of Mr. S. Ngwenya

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