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Purpose: Pneumothorax during laparoscopic surgery is not an uncommon complication. A change in the amplitude of ECG due to pneumothorax is well known. But, only limited evidence is available to use this as a diagnostic tool to detect the intraoperative pneumothorax during laparoscopic surgeries.

Clinical Features: Patient consent was obtained. A 35 year old male ASA risk I patient was scheduled for Laparoscopic left nephrectomy. During the intraoperative period, the ECG amplitude drastically reduced to 50% of its base line amplitude. Immediate clinical examination revealed decreased air entry on the left side lung. The possibility of pneumothorax was notified to the surgeon and a laparoscopic examination of the undersurface of left side diaphragm showed an iatrogenic rent. During this scenario the patient was hemodynamically stable and there was no desaturation, except there was a minimal increase in the airway pressure and end tidal CO2. To prevent further expansion of pneumothorax, surgeon was advised to reduce the intra peritoneal pressure and a PEEP (5 cmH2O) was introduced with the positive pressure ventilation. After closing the rent in diaphragm the amplitude of the ECG gradually improved to the normal size at the end of the case. The patient had an uneventful post-operative course.

Conclusion: Monitoring of ECG amplitude can be used as a diagnostic tool to identify the pneumothorax during laparoscopic surgery.


ECG Amplitude changes