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Emergency laparoscopic surgery for post-traumatic incarcerated diaphragmatic hernia: Defect closure and intraperitoneal mesh manual fixation

To the editor,

Diaphragmatic hernia is rare. The congenital forms affect 1/2500 newborns with a survival rate of about 67%.[1] Traumatic forms follow blunt of penetrating toraco-abdominal trauma in about 7% of. Symptoms can be severe until respiratory failure. Surgery is mandatory. The management was based on open approach; laparoscopic repair seems feasible and safe. Controversies remain due to rarity of the disease that makes the standardization of guidelines difficult.

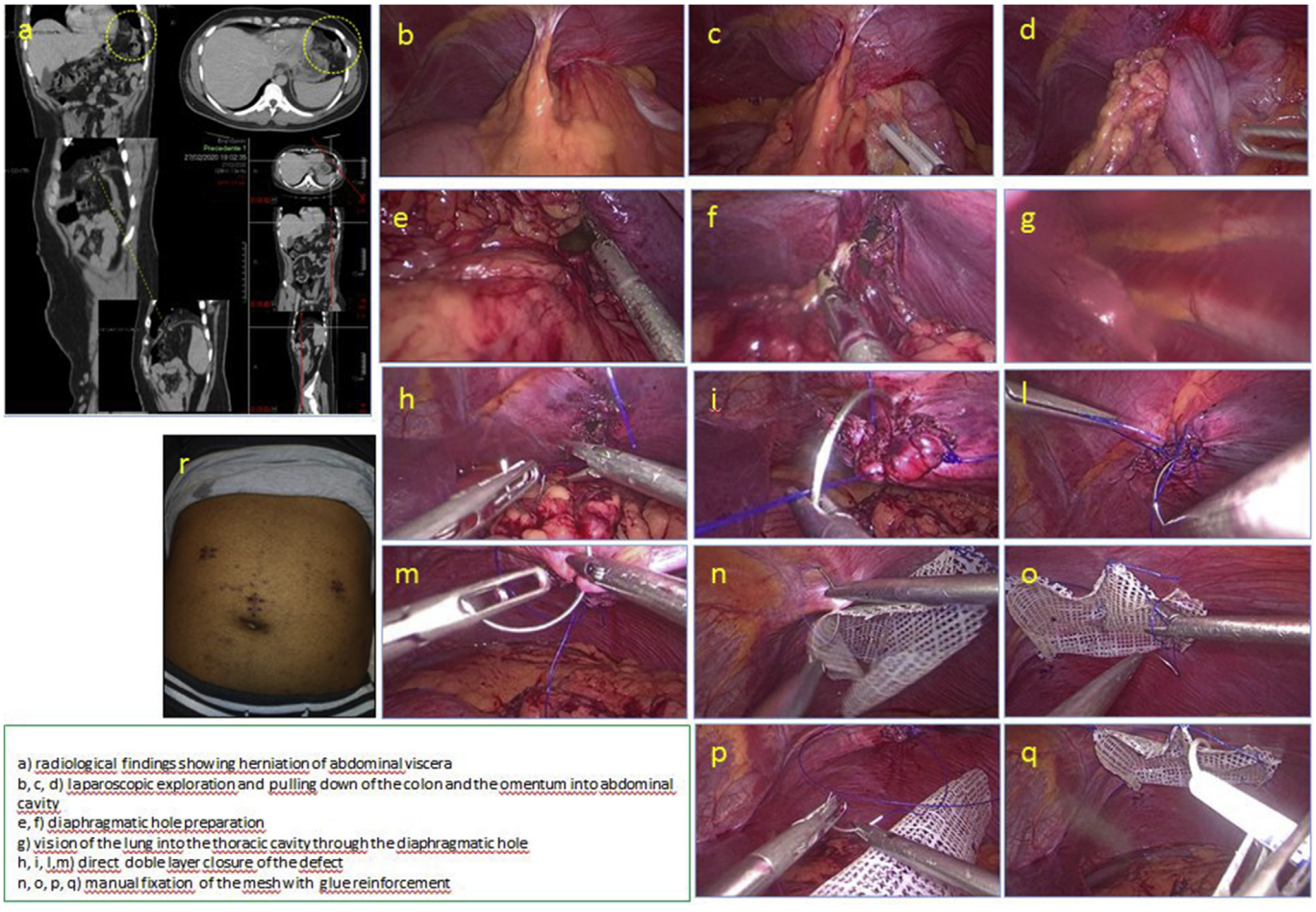

Fig. 1. a) radiological findings showing herniation of abdominal viscera, b, c, d) laparoscopic exploration and pulling down of the colon and the omentum into abdominal cavity e, f) diaphragmatic hole preparation g) vision of the lung into the thoracic cavity through the diaphragmatic hole h, i, l,m) direct doble layer closure of the defect n, o, p, q) manual fixation of the mesh with glue reinforcement

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A 39 years old male patient was referred to our hospital, for acute abdominal pain resistant to painkiller drugs and cough, dyspnoea and signs of initial bowel obstruction. Abdomen was tense with peritoneal irritation. Computed tomography scan revealed migration of viscera in the left thoracic cavity through a diaphragmatic defect, with lung compression. Emergency surgery was performed; exploration confirmed translocation in thorax of all omentum, transverse colon and bowel loops. By slow tractions, the content was reduced in the abdominal cavity exposing a 3 cm diaphragmatic hole without hernia sac. We performed a double layer continuous and interrupted non-absorbable suture. Non absorbable mesh was fixed over the hole by interrupted stitches; biological glue was used to better sealing. No chest or abdominal drain was placed. No complications was reported and he was discharged after 3 days. No complications were reported to one month [Fig. 1].

Diagnosis and treatment is challenging. Every diagnostic delay increase morbidity and mortality. Causes are blunt (5% of cases) or penetrating (19%) trauma of thorax and/or abdomen, with migration of viscera and lung compression and incarceration that can lead to reduction of venous return to the heart until respiratory/cardiovascular collapse. Symptoms can develop suddenly or delayed of several months. Up to 89% of cases is involved the left part of the diaphragm**.** Up to 50% of cases are unrecognized in acute phase. Surgery should be performed as soon as possible. For a long time open repair has been considered the safest surgery. Laparoscopy is controversial in trauma patients and should be limited to isolated diaphragmatic trauma, because of the rate of missing associated abdominal injuries (41%). Acute cases are easier because the defect is small, recent and reduction of the viscera is quickly; the closure of the hole is not complex. Chronic ones develop an adhesive syndrome that can make difficult repositioning abdominal organs. Management still remains controversial; it is accepted that most defects can be primarily closed with a non-absorbable suture considered as feasible for defects <3 cm. Mesh placement is advised for the chronic form or for wide defects, to reinforce it and reduce the tension of the suture; opinions on its use are divergent.[2–5]

Diaphragmatic hernia is challenging. Acute presentation can be life-threatening requiring emergency surgery. Surgery is demanding; reconstruction is considered among the most difficult. Due to its rarity, no guidelines exist, indications are given by case-series or review and no definitive conclusion can be drawn about optimal treatment. In our experience, laparoscopic repair with mesh seems to be safe and feasible even in acute setting.

Declaration of competing interest

Declaration of any potential financial and non finacial conflicts of interest: all the authors declare that they do not have any potential financial and non finacial conflicts of interest.

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