Introduction

The diaphragm is an arched, thin, and flat muscle. Strong, silent, diagnostically challenging, and controversial, it can be considered the unsung workhorse of the body. Never resting, responsible for our breathing, it serves as the divisory landmark and as the unknown frontier between the two largest territories of the body, the thoracic and abdominal cavities. Once this boundary is crossed, it can invariably be said that the severity of injury and the surgical challenges to its management increase dramatically(2).

Injuries to the diaphragm have always proven a diagnostic challenge to surgeons. The diaphragm has certainly tested their creativity and ingenuity, as witnessed by the numerous diagnostic procedures devised with the hope of establishing a diagnosis(2).

The entity of post-traumatic herniation of the stomach was first described by Sennertus(13). He accurately described the postmortem findings in a patient who sustained and survived a penetrating wound of the chest seven months previously.

Bowditch(14),in 1853, was the first to establish the ante-mortem diagnosis of a traumatic diaphragmatic hernia, and collected 88 cases reported in the literature. His extensive review of the literature allowed him to establish five criteria for the diagnosis of diaphragmatic hernias: [1] prominence and immobility of the left thorax; [2] displacement of the cardiac area of dullness to the right; [3] absence of breath sounds over the left thorax; [4] presence of bowel sounds in the left thorax; and [5] tympany to percussion in the left chest.

The incidence of diaphragmatic injuries is hard to estimate from the literature, as most series do not cite a figure. It can be stated that diaphragmatic injuries occur with an average of 3% of all abdominal injuries, and that their incidence ranges from 0.8 to 5.8% of all abdominal injuries. Diaphragmatic rupture (DR) on the left side occurs in about 90% of the cases, while right-sided Diaphragmatic rupture is rare and occurs in approximately 5% to 20% of all diaphragmatic disruptions. The incidence of herniation of the intra-abdominal organs into the pleural cavity is low and observed in only about 19% of right-sided DRs and is observed in 58% of left-sided DRs(15,16).

The dynamic nature of diaphragmatic motion, coupled with the anatomic design of the diaphragm protects this structure from casual injury. Penetrating injuries include gunshot wounds, stab wounds, whereas blunt injuries result from motor vehicle accidents or falls from heights. Less commonly, iatrogenic injuries result from surgical misadventures(15,16).

In order to establish which mechanism of injury prevails in cases of diaphragmatic hernia, it appears that penetrating injuries remain the most common cause of diaphragmatic injuries, with a ratio to blunt injury of 2 to 1 (17,18).

The diagnosis of a diaphragmatic injury presents a challenge to the trauma surgeon and a problem in a patient with multiple injuries. Blunt or penetrating thoracoabdominal traumas can result in Diaphragmatic rupture(2).

The preoperative diagnosis of traumatic DR is difficult. Patients with undiagnosed rupture of the diaphragm can develop symptoms after a delay of weeks, months, or even years.