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Case Report

Blunt bilateral diaphragmatic rupture—A right side can be easily missed

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ABSTRACT

Blunt diaphragmatic rupture (BDR) is uncommon with a reported incidence range of 1%–2%. The true incidence is not known. Bilateral BDR is particularly rare. We presented a case of bilateral BDR and we think that the incidence is under-recognised thanks to an easily missed and difficult to diagnose right sided injury.

Introduction

Blunt diaphragmatic rupture (BDR) is uncommon. Contemporary series reported an incidence of only 1% to 2% [1,2], but the reported incidence might be underestimated, given the paucity of published modern series that liberally use computed tomography (CT) and the theoretical assumption that the diagnosis of right-sided injury can be missed and underreported. *Bilateral* BDR is particularly rare. To our knowledge, 5 case reports have been published thus far (Table 1). We herein present a case of bilateral BDR. In light of our patient's presentation, we believe that bilateral BDR may be underreported because of an easily missed (both intraoperatively and postoperatively) right-sided injury.

Case

A 16-year-old male unrestrained backseat passenger was brought to our trauma bay after a high-speed motor vehicle collision with a rollover. He suffered multiple injuries, including traumatic brain injury;

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Table 1
Case-reports of bilateral blunt diaphragmatic rupture.

		Age (years)	Sex	Mechanism	Delay in diagnosis (days)
1.	Salah AA et al.[a]	12	Female	Back seat unrestrained MVC[f]	2
2.	Sirbu H et al.[b]	67	Male	MVC	10
3.	Anderson DW et al.[c]	42	Male	Blunt chest trauma	none[g]
4.	Wyffels PL et al.[d]	17	Male	MVC	none[g]
5.	Bryant LR et al.[e]	19	Male	Front passenger MVC	14
6.	Michailidou et al.	16	Male	Back seat unrestrained MVC	17

[a] Lung India 2011; 28(3): 212–215.
[b] Hernia 2005; 9(1): 90–92.
[c] J Trauma 2002; 52: 560–561.
[d] Am J Surg 1984; 147: 414–417.
[e] J Trauma 1978; 18(4): 280–282.
[f] MVC = motor vehicle collision.
[g] Both diaphragmatic injuries were discovered during the initial operation.

complex pelvic fractures; spleen, liver, and renal injuries; and left diaphragmatic rupture. His initial chest X-ray (CXR) revealed his stomach herniating inside his left chest. He underwent immediate laparotomy and repair of his left diaphragm. Intraoperatively, the surgeon examined the right diaphragm by palpation and noted no abnormality. Postoperatively, the patient had a prolonged ventilator-dependence. His daily CXR showed right-sided diaphragmatic abnormality (Fig. 1) but was nonspecific. We performed a dynamic ultrasound to evaluate the right diaphragm; the result suggested that the right diaphragm was paralysed, probably secondary to right phrenic nerve injury. On 3 occasions (post-injury day 0, 4, and 15), the patient underwent CT of the chest; none of those 3 scans reported right-sided diaphragmatic injury, despite the presence of

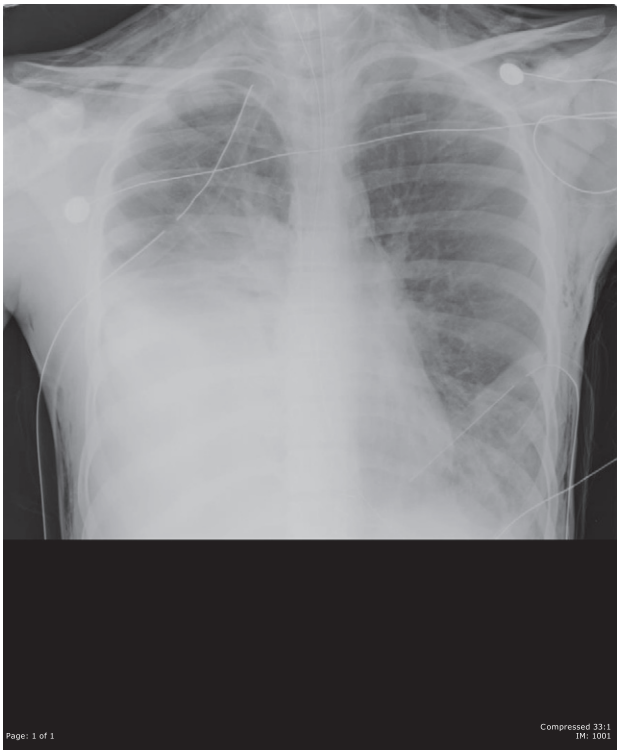

Fig. 1. The post-injury daily chest X-ray showed right-sided diaphragmatic abnormality but was nonspecific.