

## Case Report

# Spontaneous gastric rupture in a pre-school child preceded by generalised fits and presenting with tension hydro-pneumoperitoneum

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## ABSTRACT

Spontaneous perforation of a normal stomach is a rare event especially in the paediatric non-neonatal age group and mainly reported in the Chinese and Japanese literature. We report the first case in the Asia Pacific preceded by a generalised fit.

A previously healthy 2 year old Malay boy presented with convulsions and vomiting. Post-ictally, his abdomen was distended. He was intubated for airway protection. Transfer to a paediatric surgical centre was delayed by about 12 hours because the diagnosis was disputed and by then patient became unstable with a tension hydropneumoperitoneum resulting in cardiovascular collapse. This was relieved by an abdominal needle paracentesis and he was stable for transfer. The findings of the laparotomy was a simple perforation at the lesser curvature of the stomach. The child survived following intensive postoperative care with neurological impairment. Histopathological report did not show any abnormality.

Hence we postulate that epilepsy could cause gastric distension leading to perforation.

In conclusion, gastric rupture can follow an epileptic fit and patients deteriorate rapidly hence early diagnosis is vital.

**KEYWORDS:** Gastric Rupture, Pre-School Child, Generalized Fits, Hydropneumoperitoneum.

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## INTRODUCTION

Spontaneous rupture of stomach sometimes occurs in the neonatal period but is rarely seen beyond the neonatal period [1]. All articles on spontaneous idiopathic gastric rupture in pre-school age children have only been reported in Japanese and Chinese literature and an isolated European case [2]. Its clinical course progresses rapidly and the mortality is high. If early diagnosis and prompt treatment not initiated, the condition can worsen and result in death or serious complications. Although spontaneous gastric rupture in neonates has been attributed to many factors such as congenital absence of gastric musculature, prematurity,

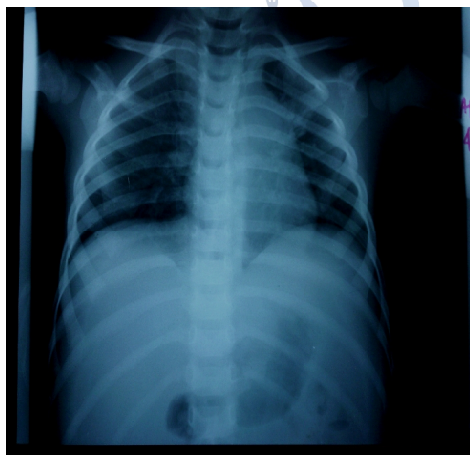
ischemia, and increased gastric pressure due to other gastrointestinal lesions or inadequate ventilation [1,3] the aetiology of this condition in preschool children still remains obscure [1]. We hereby report what we believe to be the first case in the world of a spontaneous rupture of the stomach in a preschool child preceded by a generalised fit.

## CASE REPORT

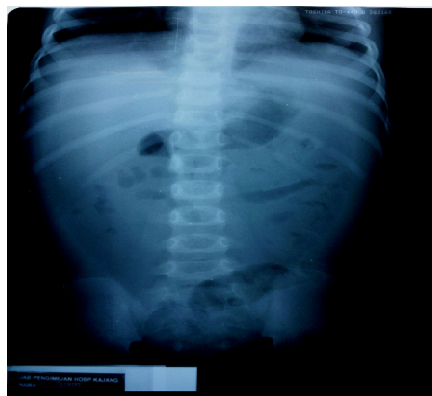
A previously perfectly healthy 2 year old Malay boy presented to the hospital with sudden episodes of fits. At the emergency department post ictally the child vomited altered blood.

On examination, he was listless, dehydrated and tachycardic. The abdomen was progressively becoming distended and tensed. He needed to be intubated for airway protection and respiratory support. The abdominal X-ray was suspected to have the 'football sign' indicating pneumoperitoneum (Fig. 2). There was uncertainty about the diagnosis because of the unusual presentation causing a delay in the transfer to a paediatric surgery unit. The child's general condition deteriorated rapidly and he developed a tension hydropneumoperitoneum and left hydrothorax leading to cardiovascular collapse (Fig 3). A needle abdominal paracentesis and a left chest tube was inserted to relieve the condition and he was transferred to the tertiary hospital once stable. Laparotomy was done which revealed a simple perforation at the lesser curvature of the stomach. The child survived following intensive postoperative care but showed neurological impairment. Histopathology reported the sample obtained during the operation as an ulcer, however did not show any abnormality of the stomach wall.

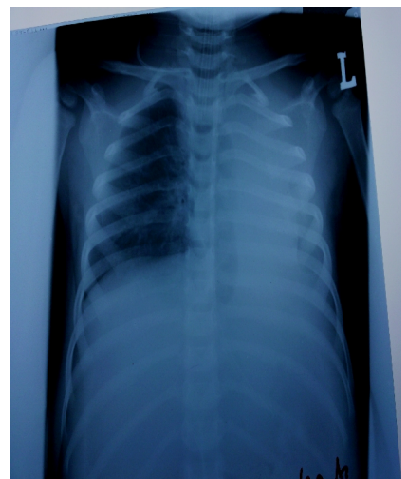
**Fig. 1:** Chest radiograph showing no air under the diaphragm (BEFORE INTUBATION)



**Fig. 2:** AXR Large oval radiolucency outlining the abdominal cavity suggesting pneumoperitoneum (BEFORE INTUBATION)



**Fig. 3:** CXR showing left hydrothorax and right tension pneumothorax.



## DISCUSSION

Gastric rupture sometimes occurs in the neonatal period, but is rarely seen in children [4,5,6]. This condition has been reported in Chinese and Japanese literature [7]. In children, they usually have a wide spectrum of presentation such as acute onset of rapidly progressive massive abdominal distension, vomiting, hematemesis, acid-base imbalance, peritonitis, respiratory distress, cyanosis and poor perfusion [4,8] which was the case in our patient. Gastric rupture is usually seen in premature neonates with asphyxia and low birth weight [7]. Our patient did not have a past history of prematurity, birth trauma or hypoxia. Rupture of a normal stomach has been known to occur because of increased intragastric pressure, with such contributing factors as overeating, over drinking and fermentation of gastric contents; as the pressure increases until the tensile strength of the stomach wall is exceeded. The gastric wall becomes large and thin and its blood vessels becomes extended, constricted, and even obstructed, resulting in ischemia. At first blood flow becomes slow, disseminated intravascular coagulation and vascular occlusion may follow and arterial necrosis of the gastric wall may occur [4,9]. It has also been reported that increase of the intra-abdominal pressure after laboured coughing or vomiting, blunt abdominal trauma, ulcers, tumours, cardiopulmonary resuscitation and the Heimlich manoeuvre can precipitate rupture [1,9]. In this case, there was no history of trauma or any other underlying diseases. The literature search suggested that per

foration along the lesser curve such as in this case was usually due to a distended stomach whereas vomiting is usually associated with a cardia tear [10]. Furthermore it has been reported that in a supine subject, fluid would collect in the cardia and pylorus, the most dependent portions of the stomach thus creating a one-way fluid valve [9] and leading to increase intragastric pressure. Hence we postulate that epilepsy could cause gastric distension probably from aerophagia and with a one-way fluid valve, the resulting tension in the stomach caused the perforation.

## CONCLUSION

This condition in children although rare but rapidly progressive with high mortality and can be easily misdiagnosed. We conclude that gastric rupture can follow an epileptic fit. Early diagnosis and treatment will reduce complications and mortality.

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