Dr Michael Grant, Academic FY1, North Central & East Thames

Dr Christopher Chung, FY1, North Central & East Thames

Dr Natalie Atalla, Academic FY1, North West Trust - NI

Dr Padraig McGuinness, FY1, North West Trust - NI

Dr Niall O'Kane, Registrar Psychiatrist, Goodmayes Hospital London

Dr Mairead Corrigan, Lecturer, Queen's University Belfast School of Medicine

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PNEUMOBILIA VERSUS PORTAL VENOUS GAS IN BLUNT ABDOMINAL TRAUMA

Editor,

Hepatic portal venous gas (HPVG) and pneumobilia secondary to blunt abdominal trauma are rare CT findings. Appearances are similar and can lead to diagnostic confusion. HPVG, was first described by Wolfe and Evans in 1955[1] in relation to non-reversible intra-abdominal pathology in post mortem infants. Other causes have subsequently been described, but it is a rare finding in blunt abdominal trauma[2]. Pneumobilia has been reported in the context of emphysematous cholecystitis, passage of a biliary stone and endoscopic retrograde cholangiopancreatography (ERCP) but rarely in trauma.[3]

The following case supports the postulate that neither pathology is an absolute indication for exploratory laparotomy in an otherwise stable patient.

CASE REPORT

A 61-year-old white male was transferred 25 miles from the scene of a high-speed road traffic accident to the Royal Victoria Hospital. He was the driver of a car involved in a head on collision. He was restrained by his seatbeat and entrapped for 45 minutes due to driver compartment intrusion. Type II diabetes was his only significant past medical history.

He arrived in the resuscitation department 88 minutes after impact. He had been immobilised at the scene. Primary survey revealed haemodynamic stability and a GCS of 15/15. He was vomiting copious amounts of clear fluid with associated severe generalised abdominal, right-sided chest and lower back pain. He had both a seatbelt sign and extensive bruising across his right lateral chest and back. Bloods including amylase were unremarkable. A full-body Trauma CT scan was conducted. The initial report identified significant global injuries including; a mid-shaft fracture of the right clavicle, multiple right-sided rib fractures, an unstable two column fracture of L5 vertebral body, traumatic liver laceration with associated pneumobilia segment 4A (figure 1), right posterior transverse abdominus avulsion, extensive thickening of the small bowel, flattening of the IVC and hyperenhancing adrenals suggesting hypovolaemia and shock. No mesenteric haematoma, free fluid or pneumoperitoneum was present.

On surgical reassessment the patient remained generally tender despite analgesia however haemodynamically was stable with no peritonitis. The decision was made not to proceed to immediate laparotomy. The patient was transferred to the High Dependence Unit for monitoring. Intubation was not required.

Fig 1. Gas in liver initially described as pneumobilia reported on review of images as portal venous gas, given peripheral distribution away from the main biliary tree.

The following day radiology review suggested the gas within the liver was in the portal venous system (HPVG), likely related to acute gastric dilatation as gas was also seen within the stomach wall dependently in the left upper quadrant (gastric pneumatosis) (figure 2), with small foci of gas in the adjacent gastric veins. As he remained stable we continued conservative management and the patient was successfully discharged home 21 days post admission.

Our case adds to the growing body of evidence that post-traumatic HPVG and pneumobilia are surrogate markers of significant trauma but neither sign in isolation should prompt immediate exploratory laparotomy in an otherwise stable patient.

Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

Fig 2. Incidental finding of gas within stomach wall

Keywords: pneumobilia, blunt trauma, portal venous gas

McGarry K [1], McGrogan D[1], Gillespie JS[2], Clements B[1].

Institution

1. Department of Emergency General Surgery, Royal Victoria Hospital, Belfast Health and Social Care Trust, 274 Grosvenor Rd, Belfast BT12 6BA.
2. Department of Radiology, Royal Victoria Hospital, Belfast Health and Social Care Trust, 274 Grosvenor Rd, Belfast BT12 6BA.

Correspondence to: Kevin McGarry

E-mail: kmcgarry10@qub.ac.uk

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JOHN FAGAN AND THE PNEUMATIC TYRE

Editor

It cannot be said of many presidents of the Ulster Medical Society that they helped to change the world but if a claim by John Fagan is true then he was one. The pneumatic tyre was patented in 1845 by Robert William Thomson who, despite demonstrating its advantages on heavy horse-drawn vehicles, could not make it a commercial success. John Boyd Dunlop, a veterinary surgeon with a large practice in May Street, Belfast, filed his own patent in 1888 but acknowledged that it was doubtful it was valid when, in 1890, he learnt of Thomson's prior art. The efficiency and comfort of the pneumatic cycle tyre and its success in cycle races lead to a huge demand for it especially after Charles Kingston Welch made it detachable.

Sir Arthur du Cros published a history of the pneumatic tyre in 1938[1] and was well placed to do so as he had been a director of the Pneumatic Tyre and Booth's Cycle Agency (his father's company with Dunlop on the Board) and of its successors, the first being the Dunlop Pneumatic Tyre Company. John Fagan (later Sir John Fagan), twice President of the Ulster Medical Society, had suggested that Dunlop's son, Johnnie, should take up cycling as it was an excellent form of exercise. The granite setts in the streets of Belfast made riding on solid tyres a jarring experience and Dunlop began to experiment with non-solid ones, initially filling them with water. Fagan had experience of air mattresses in his medical practice and du Cros states that Fagan frequently claimed to family and friends that he had suggested to Dunlop that he would be better to use air. Du Cros knew Dunlop very well from 1892 onwards and does not record any denial by him which perhaps lends credence to Fagan's claim. Thus Fagan would seem to have had a significant influence on the re-discovery of the pneumatic tyre on which modern road and air transport depends.

Correspondence to: Logan J I

6 Notting Hill, Belfast BT9 5NS, United Kingdom

Email: jlog@zetnet.co.uk

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PARANEOPLASTIC VITELLIFORM MACULOPATHY – ASSOCIATION WITH PRIMARY CANCERS

Editor,

We wish to highlight an important potential ophthalmic paraneoplastic presentation, that should trigger further investigations to diagnose underlying malignancy.

Paraneoplastic disorders are conditions related to systemic malignancy, but the effects occur at a site remote from the original tumour or metastases.[1] It is estimated that paraneoplastic syndromes affecting the nervous or visual systems occur in about 0.01% of patients with cancer[2]. A systematic review in 2013 by Rahimy and Saraf listed the 23 cases of paraneoplastic vitelliform maculopathy (PVM) reported in the literature at that time. Most of the cases described were associated with cutaneous or choroidal melanoma and only rarely with carcinoma. All the cases in the review were either associated with metastatic disease at the time of presentation to ophthalmology or metastases were discovered within the following months[3]. The average age of onset was 59 years, with equal sex distribution[3].