Ulster Medical Journal
Curiositas (online edition)
May 2013

IN THE NEWS

A phone kiosk in Crossgar, County Down has taken on a new life. In partnership with the British Red Cross, Queen's University Belfast, Down District Council and British Telecom - the kiosk has had an automated external defibrillator (AED) installed. Together with a series of training events for the local community - Crossgar is prepared for such an emergency. Let's hope they never actually have to use the device in the first place.

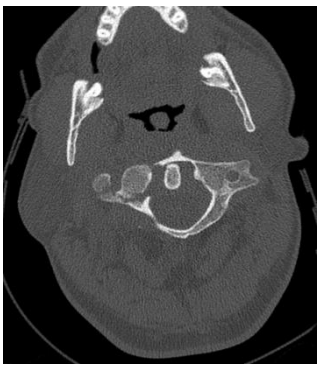
HISTORICAL QUIZ

Who is this famous Northern Irish physician born in a town just 5 miles away from Crossgar? Amongst his many noted contributions to society, some include bequeathing his vast collections of books, specimens and curiosities that provided the foundation of the British Museum. He is also credited with inventing milk chocolate.

RESEARCH QUIZ

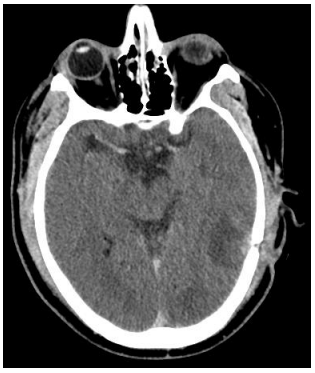
You may recognise this famous Northern Irish building in the background. However how has the device in the foreground helped to improve physical activity levels of some of our local civil servants?

POSTGRADUATE QUIZ



A 40-year old male presented to his local Emergency Department with neck pain following a fall. A CT scan of his neck was performed. What key abnormality do you notice on this CT scan? What is the recommended surgical treatment for this condition?

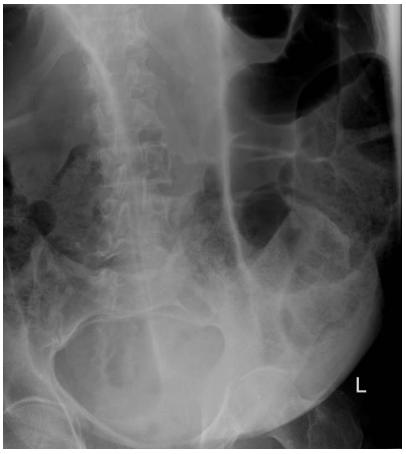
Three months later the patient presents with tonic-clonic seizures and undergoes a CT Brain (with contrast). What does the scan reveal and what is the underlying mechanism?



Mr Tom Flannery, Consultant Neurosurgeon and Senior Lecturer, Royal Victoria Hospital, Belfast Health and Social Care Trust and Queen's University Belfast

MEDICAL STUDENT QUIZ

A 74 year old male present to the Emergency Department with a 24 hour history of a distended abdomen, abdominal pain and absolute constipation. An abdominal x-ray was performed. What are the key clinical features in this radiograph?



Dr Ian Bickle, Consultant Radiologist, Raja Isteri Penigran Anak Saleha Hospital, Bandar seri Begawan, Brunei Darussalam

ANSWERS See page 2-4

CONSIDER CONTRIBUTING TO CURIOSITAS? Please refer to '*Curiositas: Guidelines for contributors*' and email curiositas@ums.ac.uk with your ideas and submissions

Ulster Medical Journal

Curiositas: Short answers

May 2013

HISTORICAL QUIZ

Sir Hans Sloan, born in Killyleagh 1660. For further information read Dr Stanley Hawkins article on Sir Hans Sloane's life and legacy. Ulster Med J 2010;**79(1):**25-29.
http://www.ums.ac.uk/umj079/079(1)025.pdf
(Image of painting of Sir Hans Sloane, Ulster Medical Society Rooms)

RESEARCH QUIZ

Queen's University Belfast researchers from the Centre for Public Health investigated the impact a 'physical activity loyalty card scheme' had on a sample of Northern Ireland government office workers. Participants swiped their physical activity 'loyalty card' on sensors around Stormont grounds and earned 'points' which could be redeemed for retail vouchers based on the amount of physical activity completed. The authors concluded that the scheme led to a short term change in physical activity and demonstrated the potential for physical activity promotion and business engagement in health. *(Hunter RF, Tully MA, Davis M, Stevenson M, Kee F. Lancet 2012;380;4)*
http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(13)60360-8/abstract
(Images courtesy of Dr Mark Tully and Dr Ruth Hunter; Centre for Public Health, Queen's University Belfast)

POSTGRADUATE QUIZ

This patient has sustained a right-sided lateral mass C1 fracture (Jefferson type). He required a Halo-Vest Brace for immobilisation of the upper cervical spine. Three months later the patient presented with tonic-clonic seizures. A CT scan revealed cerebritis (early abscess formation) secondary to pin-site infection (due to penetration of dura and bone) from their Halo brace. Please see page 3 for long answer.

MEDICAL STUDENT QUIZ

Sigmoid volvulus / large bowel obstruction. Please see page 4 for long answer.

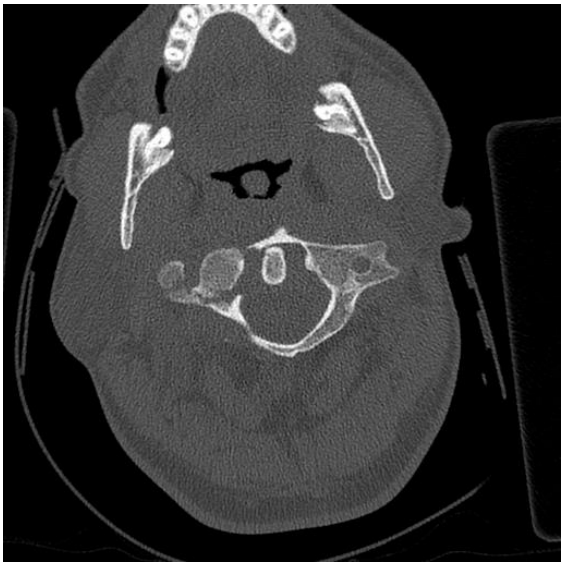
Ulster Medical Journal

Curiositas: Long answers

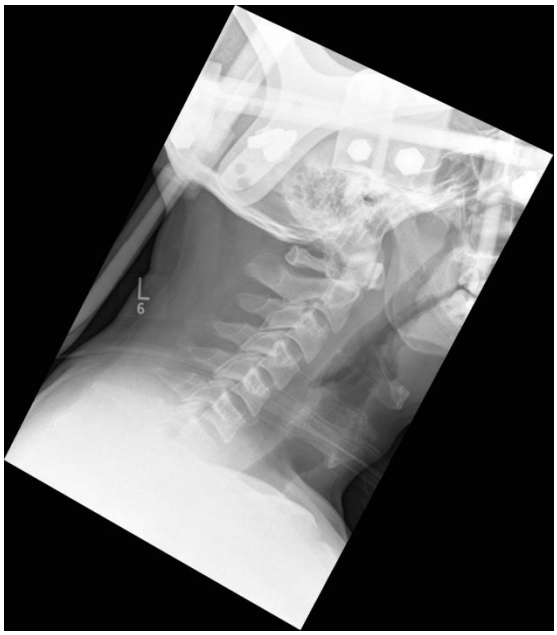
May 2013

POSTGRADUATE QUESTION

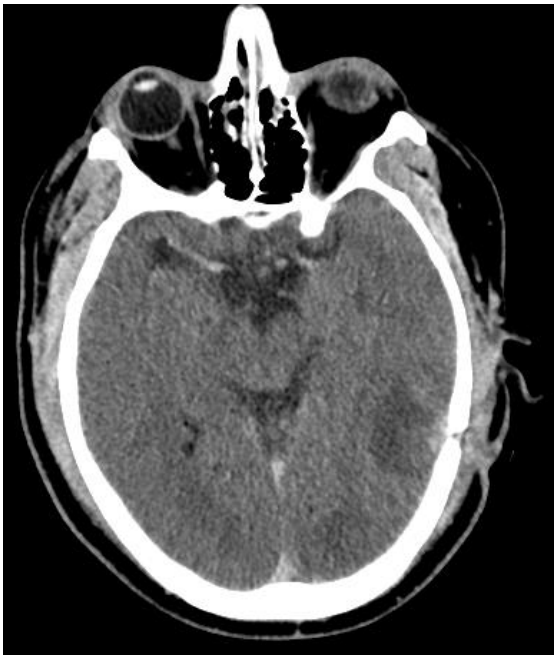
A 40-year old male presented to his local Emergency Department with neck pain following a fall. A CT scan of his neck was performed. What key abnormality do you notice on this CT scan? What is the recommended surgical treatment for this condition?



Answer: This patient has sustained a right-sided lateral mass C1 fracture (Jefferson type). He required a Halo-Vest Brace for immobilisation of the upper cervical spine.



Three months later the patient presents with tonic-clonic seizures and undergoes a CT Brain (with contrast). What does the scan reveal and what is the underlying mechanism?



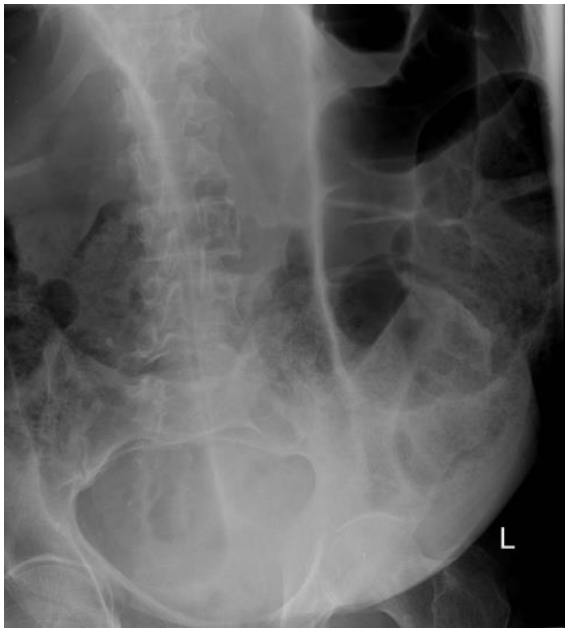
Answer: Cerebritis (early abscess formation) secondary to pin-site infection from his Halo brace.

Commentary: Halo brace (vest) is recommended for the treatment of minimally displaced atlas (including lateral mass in this case) fractures. They are designed to control motion of the cervical spine and are the standard devices against which all other cervical orthoses are compared. However, they are invasive as they rely on skull fixation and very rarely the pin sites can penetrate the inner table of the skull (as in this case). Dural penetration resulting in associated cerebritis / abscess formation has been rarely described as a manifestation of pin site erosion through the skull. Typically, cerebral abscess requires early surgical drainage which also helps identify the causative organism (in this case staphylococcus aureus). A lengthy course of antibiotics (typically intravenous) is required with serial follow-up imaging and serological (e.g. CRP, WCC) parameters until infection resolution.

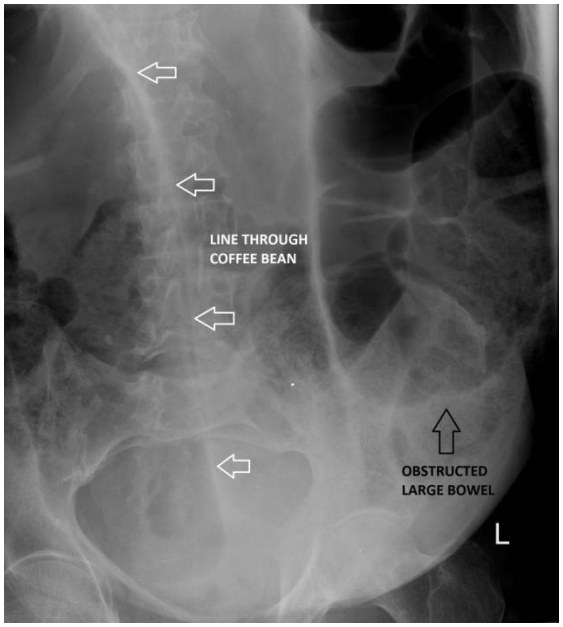
Mr Tom Flannery, Consultant Neurosurgeon and Senior Lecturer, Royal Victoria Hospital, Belfast Health and Social Care Trust and Queen's University Belfast

MEDICAL STUDENT QUESTION

A 74 year old male present to the Emergency Department with a 24 hour history of a distended abdomen, abdominal pain and absolute constipation. An abdominal x-ray was performed. What are the key clinical features in this radiograph?



ANSWER



Large bowel obstruction (LBO) is one of the commoner reasons for acute surgical admission. The vast majority of cases will be due to an obstructing colorectal carcinoma, with the single most frequent site of obstruction being in the sigmoid colon. One of the other not infrequently experienced causes of LBO, particularly in the older age group, is a sigmoid volvulus. Sigmoid volvulus is the most common form of gastrointestinal tract volvulus. The typical presentation is will a distended abdomen, lower abdominal pain and constipation. Clinical imaging plays an essential role in diagnosis and aiding management. The initial investigation of choice is a plain radiograph, which demonstrates a distal large bowel obstruction, but with a twist, both in terms of appearances and literally. The sigmoid colon twists (volves) on its mesentery, causing obstruction and on occasion ischaemia. Distension of the small bowel depends on the competence of the ileocaecal valve. The distinct and essentially pathognomic feature is the hugely dilated, usually featureless sigmoid loop, with an appearance described as a 'coffee bean'. The inner aspect of the coffee bean, resembling the line through a coffee bean, is due to two opposing bowel walls (white arrows). Although usually hugely distended, an associated perforation is rarely observed.

Plain radiograph appearances are in most cases sufficient to proceed with the usual surgical management of insertion of a flatus tube. If there is a diagnostic dilemma or atypical clinical features, additional imaging with CT is recommended. Traditionally a water soluble enema, with a bird's beak appearance at the site of the volvulus was used, but this is rarely used in contemporary imaging. CT abdomen has the advantage of confirming the site of the volvulus, aided by observing the twist in the mesenteric vessels, (the ‘whirl sign’), along with allowing assessment for perforation or ischaemia. If the sigmoid volvulus is complicated by perforation or ischaemia or is recurrent, then definitive surgery is considered.

Dr Ian Bickle, Consultant Radiologist, Raja Isteri Penigran Anak Saleha Hospital, Bandar seri Begawan, Brunei Darussalam