

## Giant incisional hernia containing a large renal cyst

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**Introduction:** Hernias are common surgical diseases. Incidence of incisional hernia depends upon the size and location of the former incision and ranges from 3 to 20 percent. In clinical practice the variability of surgical techniques for hernia repair is great and a wide range of publications are available. Surgery for renal cysts depends on whether they are classified simple or complex. Simple cysts are more common and the majority requires no treatment. Complex renal cysts are associated with an increased risk of malignancy. This is the first report on a giant incisional hernia containing bowl combined with a voluminous renal cyst.

**Case description:** An 80-year-old female diagnosed with a giant incisional hernia combined with a large left renal cyst was referred to our surgical department from a peripheral hospital for hernia repair. Physical examination showed a ventral incisional hernia (50x50cm) extending to the upper thigh with multiple skin lesions and clinical signs of obstipation. CT scan revealed two hernial orifices measuring 13cm and 4.5cm in diameter. The giant hernial sac contained not only incarcerated small and large bowel but also a large left renal cyst containing 3 litres of fluid.

**Results and Conclusions:** We performed a second median laparotomy with complete release of all abdominal adhesions. The renal cyst was resected and its base marsupialized. Hernia repair was achieved by both sided compartment separation as described by Ramirez combined with an intraperitoneal onlay mesh sized 40cmx60cm. Intraoperative measurement of creatinine in the cyst fluid revealed no connection to the urinary tract making further renal surgery unnecessary. By resecting the renal cyst, intraabdominal volume was markedly reduced allowing tension free abdominal wall reconstruction. Histological examination of the cyst, the hernial sacs and the resected skin revealed no surprising findings. Postoperative recovery was uneventful and drains were removed before discharge. Bowel movement started on the third postoperative day. Wound dehiscence was treated by negative pressure wound therapy and no recurrence has yet been detected two months postoperatively.

**Take home message:** Surgical repair of giant incisional hernias is challenging and is associated with significant morbidity and mortality. Individual planning of abdominal wall reconstruction is key for successful treatment and is even the more important in complex hernias with loss of domain or accompanying intraabdominal pathologies.

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## The Alvarado scoring system in acute appendicitis: A 6-month cross-sectional study to evaluate its reliability in reducing the rate of negative appendectomy at Queen's Hospital, Burton

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**Introduction:** Globally, acute appendicitis is the most common paediatric intra-abdominal surgical emergency. The variations at presentation and the lack of a single reliable test to aid diagnosis may pose challenges

to experienced surgeons. There are many scoring systems employed by surgeons to reduce the percentage of negative appendectomies. One such example is the Alvarado system. The aim of our study was to evaluate the usefulness of the Alvarado scoring system in reducing the percentage of negative appendectomies at Queen's Hospital, a small district general hospital in England.

**Case description:** A 6-month cross-sectional study was carried out. Patients who were 16 years old or younger with a preliminary diagnosis of acute appendicitis were included in the study and their Alvarado score calculated. On the basis of their individual Alvarado score, they were placed in one of two groups: Group A (Alvarado score < 6) and Group B (Alvarado score ≥ 6). The signs, symptoms, laboratory values, surgical interventions and histopathological reports, the gold standard for diagnosis of acute appendicitis, were then evaluated. The reliability of Alvarado scoring system was assessed by calculating the rate of negative appendectomies which we defined as patients showing no signs of appendiceal inflammation on histopathology of the surgically removed appendix.

**Results and Conclusions:** 26 patients (21 males, 5 females) were included in the study. They comprised 9 patients in Group A (34.6%) and 17 patients in Group B (65.4%). The largest age group was represented by 10-15 year olds (n=16, 61.5%). The symptoms at presentation included right iliac fossa pain (92.3%), nausea or vomiting (76.9%) and anorexia (73.1%). Clinical examination revealed tenderness in the right iliac fossa in all patients (100%), rebound tenderness in 16 cases (61.5%) and elevated temperature in 3 cases (11.5%). Laboratory analysis showed raised total leukocyte count in 12 cases (46.2%) with neutrophilia in 10 cases (38.5%). Of the 26 cases, 84.6% (n=22) were confirmed to have inflamed appendix by the surgeon performing the appendectomy at the time of surgery. However, final diagnosis of inflamed appendix based on histopathology reports were confirmed in 19 cases (73.1%). The overall negative appendectomy rate was therefore 26.9% (7 cases). The rate of negative appendectomies in males and females were 15.4% and 11.5% respectively. The negative appendectomy rate in Group A and B were 33.3% and 17.6% respectively. Sensitivity and specificity of Alvarado score in our study were 82% and 100% respectively.

**Take home message:** Regarding, the reliability of the Alvarado scoring system, our recommendations are:

- (1) false negatives are few especially in high Alvarado scores (9 or greater);
- (2) further investigations may be employed in low scores (< 6) where the number of false negatives are greater;
- (3) the Alvarado scoring system should be used to supplement the diagnostic accuracy of acute appendicitis. It does not however replace the experience and expertise of the surgeon.

Surgery were performed in all the cases, along with conservative treatment pre-and post-surgery. Final diagnosis using histopathology reports was confirmed in 19 cases (73.1%) The overall rate of negative appendectomy was therefore 26.9%. Sensitivity and positive predicted value of the Alvarado score were 82% and 100% respectively.

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## A phlegmon secondary to retroileal appendicitis: A rare cause of mechanical small bowel obstruction

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**Introduction:** Appendicitis is common surgical emergency with a life-time risk of about 7% and a perforation risk of 17-20%. In young patients diagnosis does not pose a great difficulty and the surgical management is generally good. However in the elderly with varied presentation and a

difficult history, the diagnosis can be more challenging. Small bowel obstruction as a result of adhesions from appendicitis has been commonly documented in literature. But mechanical small bowel obstruction caused directly as a result of acute appendicitis is rare. We present one of this rare and interesting presentation of appendicitis.

**Case description:** An 83-year-old gentleman presented to the surgical department with a 4-day vague history of abdominal pain associated with vomiting. He had not opened his bowels for a similar time period and also complained of abdominal distension. The patient had an unremarkable past surgical history, with no prior abdominal surgery. General examination showed he was dehydrated, exhausted and looked unwell. His pulse was 94/min, BP was 120/60mmHg and he was afebrile. His abdomen was markedly distended but soft and non-tender with sluggish bowel sounds. Abdominal x-Rays showed multiple loops of dilated small bowel suggestive of small bowel obstruction. Initially the patient was managed by intravenous fluid resuscitation, nasogastric tube insertion and urethral catheterisation. An arterial blood gas analysis showed significant metabolic acidosis with raised serum lactate and negative base excess. Routine bloods showed raised urea, creatinine and WCC. Despite rigorous resuscitation the patient's condition deteriorated, hence an emergency laparotomy was performed. At surgery loops of distended small bowel were identified extending proximally from the duodeno-jejunal junction to the distal ileum. At approximately 8cm from the ileo-caecal valve, a small appendix was noticed behind the transition point covered in a phlegmon and surrounding inflammation. A routine appendectomy was performed and the abdomen was closed after thorough wash out with normal saline. No other abnormality was noticed on laparotomy. Unfortunately the patients died a few days after the operation from pneumonia.

**Results and Conclusions:** Appendicitis is the second most common surgical abdominal pathology in people over 50yrs of age. The diagnosis in this age group is often delayed compared to the younger group due to a variety of reasons including difficult history and atypical and delayed presentation. In our case the cause of mechanical small bowel obstruction was noted to be due to inflamed small appendix and phlegmon lying behind the terminal ileum. Presumably the patient must have developed appendicitis a few days prior to presentation to the hospital. This delay had caused the development of phlegmon in which the appendix was found wrapped causing intestinal obstruction. Mechanical small bowel obstruction is recognized as short-term complication (ileus) and long-term adverse effect due to postoperative adhesion after appendectomy. In literature, appendicitis as a direct cause of small bowel obstruction has been discussed but without describing the position of the appendix and most cases were secondary to perforated appendices and associated peritonitis. Small bowel obstruction without previous surgery to the abdomen is acute surgical emergency and early judicious intervention is needed to improve the final outcome. This case is unique in its presentation of appendicitis and without any obvious signs making the pre-operative diagnosis difficult.

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## Impaired coronary arteriolar function after cardioplegic-ischemia/reperfusion in pig with metabolic syndrome

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**Introduction:** Metabolic syndrome (MetS) is associated with inactivation of coronary endothelial small/intermediate ( $SK_{Ca}/IK_{Ca}$ ) conductance calcium-activated potassium channels and dysregulation of coronary arteriolar endothelial function in animals and humans. We investigated the effects of cardioplegia-ischemia/reperfusion (I/R) and NS309 pretreatment

on the in-vitro coronary arteriolar responses to endothelium-dependent vasodilators substance P and ADP in pigs with or without MetS.

**Case description:** The MetS pigs were developed by feeding with a hyper-caloric, fat/cholesterol diet and the control animals fed with a regular diet for 12 weeks (n=8/group). Coronary arterioles (90-180 micrometers in diameter) were dissected from the harvested left ventricle tissue sample of pigs with and without MetS. The changes in diameter were measured with video microscopy. Microvessel was perfused in the presence or absence of selective  $SK_{Ca}/IK_{Ca}$  activator NS309 ( $10^{-5}M$ ). The in-vitro coronary arterioles were then subjected to 60 minutes of cardioplegia-hypoxia ( $15^{\circ}C$ ) and 60 minutes of re-oxygenation.

**Results and Conclusions:** At the end of reperfusion, the microvessel was treated with the endothelium-dependent vasodilators substance P and ADP. The relaxation responses to the substance P and ADP after cardioplegia-I/R were significantly decreased in MetS vessels versus control (Lean), respectively ( $P < 0.05$ ), indicating MetS causes more impairment of endothelium-dependent-relaxation as compared with controls (Lean). Furthermore, pre-treating the MetS or control (lean) pig-microvessels with the  $SK_{Ca}/IK_{Ca}$  activator NS309 ( $10^{-5}M$ ) significantly improved the recovery of coronary endothelial function showing increased response to substance P and ADP as compared with no pretreatment alone ( $P < 0.05$ ), but this protective effect is more pronounced in lean-pigs than that of MetS pigs ( $P < 0.05$ ).

**Take home message:** This study demonstrates that cardioplegic-ischemia/reperfusion impairs endothelial function and inactivation of endothelial  $SK_{Ca}/IK_{Ca}$  channels of the coronary microcirculation in the setting of metabolic syndrome.

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## Successful laparoscopic cholecystectomy for giant gallstone using a 'double-bag' technique in an obese patient

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**Introduction:** We describe a case of successful laparoscopic cholecystectomy using a "double bag technique" to retrieve giant gall stone. Laparoscopic removal of gallstones within the gallbladder, larger than 5cm have rarely been reported in the literature.

**Case description:** A 44 year old woman presented to the outpatient surgical clinic with symptomatic gallstones. She otherwise had no other medical problems. However, her BMI was 40.9.

**Results and Conclusions:** Blood tests were within the normal range. Her ultrasound scan report showed 'many gallstones within the body of the gallbladder, the largest approximately 1cm'. During her laparoscopic cholecystectomy, a very large, 8cm gallstone was encountered in the fundus of the gallbladder.

The gallbladder wall was opened and the stone extracted and placed in the right paracolic gutter, adjacent to the liver. A standard laparoscopic cholecystectomy was then performed. The gallbladder and the 'giant stone' were extracted separately. The former via "Bert™ bag" 80ml capacity and latter via the "Anchor™ tissue retrieval system device TRS100SB2" 235ml capacity – using the "pack and push the envelope" technique.

**Take home message:** This case highlights that it is possible to retrieve a giant stone laparoscopically, without the need to convert to open procedure, using the above technique. It is important for the surgeon to be familiar with the various tissue retrieval systems available.

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