LESSON OF THE WEEK

Lower abdominal pain in women after binge drinking

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BMJ 2007;335:992-3

doi: 10.1136/bmj.39247.454005.BE

Consider alcohol related pathology in women who present with lower abdominal pain

Alcohol misuse is costing the NHS up to £3bn (€4.4bn; \$5.9bn) a year—with over 28 000 hospital admissions caused by alcohol dependence or poisoning.¹ This is small compared with the annual cost to employers, which is estimated at £6.4bn, but it excludes the hidden costs in terms of alcohol related crime and social problems. The resulting use of hospital facilities places a considerable financial burden on the NHS; inpatient costs alone accounting for 2-12% of total NHS expenditure on hospitals.¹ In terms of pathology it is estimated that there are 22 000 premature deaths each year caused by problems related to alcohol. The heaviest burden is on accident and emergency departments. Around 40% of such admissions are alcohol related, and this increases to 70% after midnight.²

Women have now caught up with men in their alcohol consumption, with 86% of women compared with 91% of men consuming alcohol regularly.³ Health concerns that were initially raised about drinking habits in men now seem to affect women as well.

Case reports

The table gives the clinical details of three women in whom we ultimately diagnosed “idiopathic” rupture of the bladder. The first two patients presented with symptoms consistent with urinary sepsis and as such were initially treated with antibiotics and rehydration. The second woman was catheterised on admission because of symptoms consistent with urinary retention. The diagnosis was initially made on the basis of the findings of free pelvic fluid on ultrasonography and, in the case of the second woman, an inability to fill the bladder. Bladder rupture was confirmed with cystography and ultimately at surgical exploration. All women underwent repair of the bladder.

Case summaries in three women presenting with lower abdominal pain

	Case 1	Case 2	Case 3
Age (years)	37	24	32
Presenting symptoms	Vague lower abdominal pain, 72 hour history; symptoms of cystitis; history of fall during alcohol use	Lower abdominal pain and associated bilateral loin pain; unable to pass urine; feverish; offensive urine	Sudden onset of suprapubic pain; previous attendance and discharge on same night; symptoms worsening
Findings on examination	Lower abdominal tenderness; no peritonism	Abdomen generally tender; no peritonism	Localised tenderness in right iliac fossa; no peritonism
Alcohol use	Alcohol misuse; 72 hours of drinking	Binge drinking on previous night	10 units/week; binge drinking 24 hours previously
Temp (°C)	37.2	37.9	36.6
Pulse (beats/min)	95	110	87
Blood pressure (mm Hg)	112/78	102/88	99/44
White cell count (×10 ⁹ cells/l)	13.2	17.4	13.7
Urea (mmol/l)	7.5	7.2	2.3
Creatinine (μmol/l)	145	219	129
Findings on:			
Abdominal x ray	Normal	Normal	Normal
Ultrasonography	Pelvic ascites	Pelvic ascites; unable to fill bladder despite bladder catheterisation	No ultrasonography performed
Initial catheterisation	Not catheterised	Dark urine (500 ml)	Not catheterised
Cystography	Leak from dome of bladder	Leak from left anterior margin bladder	No cystogram performed
Site of perforation at laparotomy	Rupture at dome of bladder	Rupture anterior wall of bladder	Longitudinal rupture at dome
Bladder repair	Open; two layer	Open; two layer	Laparoscopic; two layer

Preoperative cystogram showing intraperitoneal leak (arrow)

The third woman presented to the general surgery department with pain in the right iliac fossa. They suspected either ovarian pathology or appendicitis because of the localisation of the pain and the mildly raised white cell count. Bladder rupture was diagnosed at exploratory laparoscopy and the defect repaired laparoscopically.

Discussion

Bladder rupture has previously been reported in women, but usually in association with other pathologies, such as the 83-90% related to pelvic trauma.⁴⁻⁵ In all our cases, there was no history of pelvic injury to explain the diagnosis. Our patients did not undergo formal radiological examination of the pelvis, though all had normal results on abdominal radiology and were mobile before presentation as well as postoperatively. The other common cause of rupture is neuropathic bladder. Although a well recognised complication in patients who undergo bladder augmentation for relief of symptoms, it is rare in patients with “untreated” bladders.⁶ As the women’s symptoms before presentation and postoperatively did not suggest this diagnosis, we did not carry out formal urodynamic assessment. Routine bedside screening excluded diabetes, which is the next most common cause for “spontaneous” rupture of the bladder.

Symptoms

The symptoms of this condition are vague, and a definite diagnosis is generally made only after surgical exploration. Symptoms include diffuse suprapubic pain and tenderness, evidence of mild shock (raised heart rate, reduction in mean arterial pressure), oliguria (the bladder drains into the abdominal cavity and so gives this impression), and mildly raised renal function (caused by re-absorption of urine through the peritoneum). Ultrasonography might show fluid within the pelvis. Cystography can show the defect in the bladder as jet of contrast (figure).

Bladder rupture after alcohol consumption is a rare but well described phenomenon. A few cases have been reported of spontaneous or idiopathic rupture

in men associated with alcohol consumption.⁵⁻⁷ The condition was first described in postmortem reports in patients who regularly ingested large quantities of alcohol.⁸⁻⁹ Bennett and Delrio reported a case of bladder rupture in an 18 year old man resulting from a combination of alcohol ingestion and a self administered intravenous injection of methamphetamine.¹⁰ Mardones et al also described spontaneous bladder rupture in a 53 year old man with alcoholic abuse.¹¹

The rupture is commonly intraperitoneal and at the dome as this is the weakest point within the bladder wall. Early recognition of this condition is crucial as it does have considerable implications on survival as well as morbidity.⁵⁻⁶

Causes

In all the reported cases, diuresis and the dulling effect of alcohol,⁸ without the relief of bladder voiding, was thought to be the cause, although others have speculated about the role of bladder infarction.⁹ Alcohol consumption increases the volume of urine held within the bladder and dulls the senses such that the patient has a reduced urge to void despite the increased bladder volume. Minor trauma, such as from a fall, will further increase the pressure and can cause rupture.⁸ It has been thought that women, because of the short length of the urethra and the less pronounced sphincter mechanism, would have a tendency to leak rather than rupture.

We suggest that with the increase in alcohol consumption in women today, the complications previously seen only in men should now also be considered.

Contributors: MDD wrote paper, RK contributed to the last case report. HM AJB SKS, and CSB provided clinical details of the case reports. CSB is guarantor.

Funding: None.

Competing interests: None declared.

Provenance and peer review: Not commissioned; externally peer reviewed.

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Accepted: 25 April 2007