Perforated appendicitis masquerading as acute pancreatitis in a morbidly obese patient

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Abstract

Diagnosis and treatment of common conditions in morbidly obese patients still pose a challenge to physicians and surgeons. Sometimes too much reliance is put on investigations that can lead to a misdiagnosis. This case demonstrates an obese woman admitted under the medical team with a presumed diagnosis of pneumonia, who was later found to have an acute abdomen and raised amylase, which led to an assumed diagnosis of pancreatitis. She died within 24 h of admission and post mortem confirmed the cause of death as systemic sepsis due to perforated appendicitis, with no evidence of pancreatitis. Significantly elevated serum amylase level may occur in non-pancreatic acute abdomen.

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Key words: Morbid obesity; Perforated appendicitis; Pneumonia; Serum amylase

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INTRODUCTION

Obesity is an increasing problem in the western population and the proportion of morbidly obese people who present with non-obesity problems is increasing. An important

consideration in dealing with such patients is the difficulty of diagnosis. We present a patient with acute abdomen and morbid obesity and discuss the unusual finding of markedly elevated serum amylase due to a non-pancreatic cause.

CASE REPORT

The patient (AE) was a morbidly obese (BMI 59) 60-year-old woman with type 2 diabetes, asthma and previously diagnosed gallstones, who was referred by her general practitioner to hospital with breathlessness and a provisional diagnosis of pneumonia. Upon admission, she complained of abdominal pain, which was worse on coughing. She had pyrexia (39.4°C) tachycardia (pulse 125/min) and hypotension (90 mmHg systolic blood pressure). There were fine crepitations in both lung fields and vague right upper abdominal tenderness. A chest X-ray was requested and she was transferred to a respiratory ward.

AE was seen 3 h later by a medical Senior House Officer who thought the chest X-ray was normal, although this was reported later by a radiologist to show diffuse infiltrative shadowing consistent with acute respiratory distress syndrome (ARDS). Investigations revealed renal impairment, normal bilirubin, but raised plasma liver enzyme levels, a serum amylase level of 1029 IU/L and neutrophilia. AE was started on antibiotics as she was presumed to have acute pancreatitis and referred to the surgical team.

AE was assessed by a surgical registrar 8 h after her admission and was found to be systemically unwell, with a systolic blood pressure of 100 mmHg, pulse of 120/min, and pyrexia of 39°C. Further history taking revealed generalized abdominal pain of 5 d duration. Abdominal examination was deemed ineffective to elicit meaningful signs, due to extreme truncal obesity. The diagnosis of pancreatitis was confirmed and because of her progressive deterioration, resuscitative measures were commenced and she was referred to the High Dependency Unit (HDU). In the HDU, she had non-invasive positive pressure ventilation, invasive monitoring, and measures adopted to achieve glycemic control.

On the post take surgical ward round, the consultant on call confirmed the difficulty and unreliability of abdominal examination in such a morbidly obese patient, but given the diagnosis of acute pancreatitis, he/she advised continuation of supportive care. Shortly after AE was reviewed, she suffered a cardiac arrest and,

despite resuscitation, died. The post mortem confirmed death from generalized peritonitis and septicemia due to ruptured appendicitis. The pancreas was normal with no evidence of inflammation.

DISCUSSION

This case highlights the difficulty in making accurate diagnosis in a morbidly obese patient. It is entirely understandable why a patient referred by her general practitioner with a provisional diagnosis of pneumonia, and who upon general examination had a vague upper abdominal tenderness would be presumed to have just a chest infection. Whether the ARDS picture on her chest X-ray was missed due to extreme obesity or not is unclear. Routine blood analysis in this patient showed deranged liver function tests which necessitated the request for serum amylase analysis. Given the high level of serum amylase, it was reasonable to make a diagnosis of acute pancreatitis. However, further enquiries revealed AE had had pain for > 5 d. In retrospect, this should have raised doubt about the diagnostic value of the elevated serum amylase level. It would appear there was an over reliance on the serum amylase result by all the teams involved in her care. Serum amylase can be raised in many acute peritonitis conditions, such as perforated duodenal ulcer, appendicitis^[1] or small bowel ischemia^[2]. What makes this case unique are the history of gallstones and an excessively high level of serum amylase- both of which contributed to the misdiagnosis. Furthermore, as indicated above, serum amylase usually falls within the first 48 h of the onset

of pancreatitis^[3]. Liver enzymes may also rise in sepsis^[4]. The main obstacle to a proper and thorough physical examination in this patient was her body habitus. Given the acknowledged difficulty with examination, there is a strong case for an even more detailed history and an early recourse to the use of ancillary investigations. A computed tomography (CT) scan of the abdomen in this case might have revealed a normal pancreas and the possibility of a potential life saving laparotomy. However, it is debatable whether emergency surgery in the presence of morbid obesity, medical comorbidities and systemic sepsis syndrome would have produced a different outcome. Another consideration is that this large patient might not have fitted into the CT scanner.

In conclusion, morbidly obese patients who present with acute medical or surgical problems require detailed and thorough history taking, coupled with early and appropriate investigations, in order to avoid diagnostic pitfalls. Significantly elevated serum amylase level may occur in the non-pancreatic acute abdomen.

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