

Please read this bit first

The HPCSA and the Med Tech Society have confirmed that this clinical case study, plus your routine review of your EQA reports from Thistle QA, should be documented as a "Journal Club" activity. This means that you must record those attending for CEU purposes. Thistle will **not** issue a certificate to cover these activities, nor send out "correct" answers to the CEU questions at the end of this case study.

The Thistle QA CEU No is: **MT00025**.

Each attendee should claim **THREE** CEU points for completing this Quality Control Journal Club exercise, and retain a copy of the relevant Thistle QA Participation Certificate as proof of registration on a Thistle QA EQA.

October 2008

Alkaline phosphatase (ALP)

Case presentation

A 72-year-old woman admitted for elective surgery for a vaginal prolapse. Her physical examination was unremarkable, but a biochemical 'screen' (results shown below) disclosed an isolated high plasma ALP activity. She had no history of any serious illnesses, was a non-drinker of alcohol, and on no medication.

Plasma

Ca	2.35	mmol/L	(2.15-2.55)
PO4	0.87	mmol/L	(0.65-1.25)
TProt	74	g/L	(62-60)
Alb41	g/L		(30-60)
ALP	625	U/L	(30-120)
ALT	18	U/L	(<35)
Bili 16	µmol/L		(<20)

Differential diagnosis

In this age group the conditions most likely to cause a high plasma ALP are: *malignancy* (involving bone or liver), *liver disease*, *Paget's disease*.

Case discussion

Further biochemical tests on the patient revealed a plasma GGT of 25 U/L (normal: <30), and a plasma 5'-NT of 10 U/L (normal: <22). These results, and those on admission, suggest, though not conclusively, that the liver was not the origin of the raised ALP; and that, given her age, malignancy or bone disease (e.g. Paget's disease) was the probable cause.

Isoenzyme studies disclosed that the ALP consisted almost entirely of the bone fraction.

Final diagnosis

Radiology examinations of the entire skeleton revealed localized *Paget's disease* of the right pelvic bone.

In the early stages of *Paget's disease* only localised areas of the bone may be involved and the classical features may be absent. This is probably the commonest cause of a very high (>500 U/L) isolated plasma ALP level.

CPD Questions:

1. How would you identify the source of the raised ALP?
 2. What effect would a "healing bone fracture" have on plasma ALP levels?
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