

Secreting clear cell tumour of the parathyroid

Konstantin Bräutigam,¹ Reto Kaderli,² Sabina Berezowska¹

¹Institute of Pathology, University of Bern, Bern, Switzerland

²Department of Visceral Surgery and Medicine, Inselspital University Hospital Bern, Bern, Switzerland

Correspondence to

Dr Konstantin Bräutigam, konstantin.braeutigam@pathology.unibe.ch

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DESCRIPTION

A 77-year-old woman presented with the laboratory-based diagnosis of primary hyperparathyroidism. Osteodensitometry showed early stage osteoporosis. ^{99m}Tc-MIBI Single Photon Emission Computed Tomography/Computed Tomography (^{99m}Tc-MIBI SPECT/CT) and ultrasonography suggested a large adenoma at the inferior pole of the right thyroid lobe.

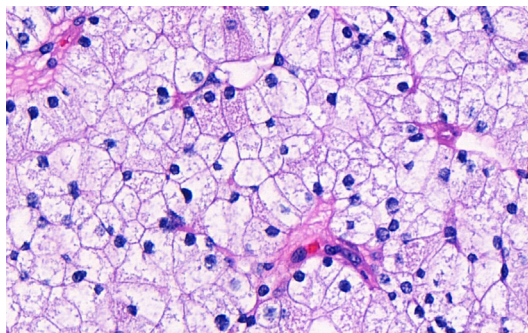


Figure 1 Histology (H&E, original magnification ×200) demonstrates clear uniform cells with round nuclei and foamy cytoplasm.

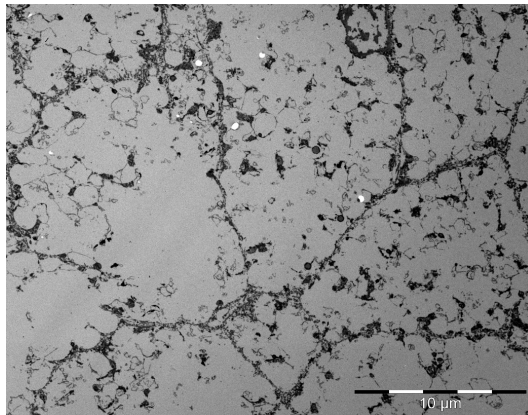


Figure 2 Typical vacuoles shown in transmission electron microscopy.

Parathyroidectomy revealed an encapsulated homogeneous nodule, composed of clear, relatively uniform cells with round nuclei and foamy cytoplasm due to multiple vacuoles (figure 1), most likely representing endoplasmic reticulum or Golgi apparatus as assessed by transmission electron microscopy (figure 2). Combined with immunohistochemical expression patterns for parathyroidal origin, those findings are typical of *water clear cell adenoma*, a rare type of parathyroid adenoma and cause of primary hyperparathyroidism with less than 20 cases reported.^{1,2} Histology (figure 1) strongly resembles metastatic renal cell carcinoma, a true diagnostic pitfall, as it may metastasize to the neck as initial presentation, is notorious for causing late metastases decades after initial tumour removal and may induce hypercalcaemia.

Postoperative parathyroid function was normal.

Learning points

- ▶ Pathologists and clinicians should be aware of water clear cell adenoma, as it is a diagnostic pitfall and may be confused with other clear cell neoplasms, for example, metastatic renal cell carcinoma.
- ▶ Water clear cell adenoma is distinctively rare.

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