

An unusual neck swelling

Dr Serge Maurice
FRCSE
Mauritius

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Yes, life's full of surprises!

Surprise No 1:
The Presentation

Hey doc,
do you
think my
neck's a bit
swollen?



Presentation

- Fit, 50 year-old helicopter pilot. Felt something 'give' in his neck while doing his routine morning 100 'chin-ups' two weeks previously and now finds that his shirt collars are a bit tight
- PMH: Appendicectomy age 18, lithotripsy of 1.2cm bladder stone May 2002
- Dad had 'something congenital removed from his neck years ago'

Initial thoughts

- Looks like a branchial cyst, in which there has been a small bleed due to the strain while doing the routine 100 chin-ups!
- So, ask for a pre-op echo, just to confirm

Surprise No 2:

The echography

Echo Report:

- Large complex multi-loculated cystic mass, 4x8cms, closely related to the R thyroid lobe. “Dense” liquid in one compartment, more fluid in others. No solid component.
- Smaller complex cyst, 3x1.2cms, closely related to lower pole Left thyroid lobe. Fluid clear, but fronds of solid material seen in anterior wall. Small cysts also seen within the Left thyroid lobe

Second thoughts

- Large right branchial cyst and thyroid disease on left side
- So let's examine the patient again & ask for some more tests

Second examination

- Deep neck palpation confirms a lumpy left thyroid lobe
- TFT's normal
- CATscan requested

CATscan report

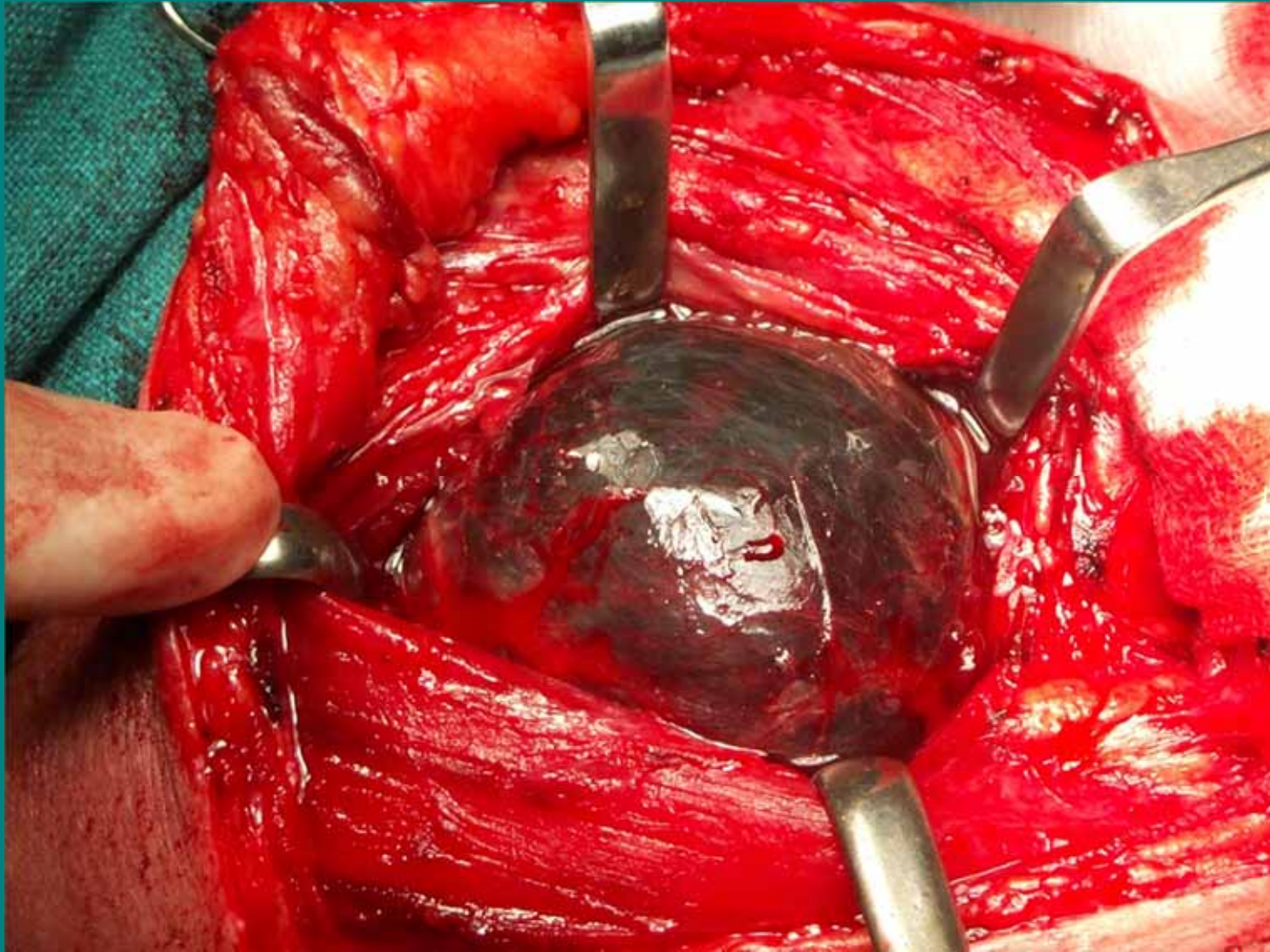
- Well defined homogenous fluid filled cyst R side of neck. Approx 10.6x5.4x4.8cms. Thin walled, extending from C4 to sternoclavicular joint, lying anterior to and abutting R common carotid. R internal jugular vein lies just lateral & is intimately related to it. It lies deep to R SCM muscle, compressing and shifting to left the R thyroid lobe, the larynx & the trachea. Posteromedially, mass extends to tracheo-vertebral angle. After contrast, the wall remains unchanged. The thyroid gland enhances vividly and is well demarcated from the mass. Patchy enhancing soft tissue noted within the mass.
- Isthmus normal. L thyroid lobe shows 2 small 1cm diameter cystic lesions at its postero-lateral border

CATscan conclusion

- The mass on R side is more in keeping with a branchial cyst than a thyroid cyst as the lateral border of the thyroid is clearly demarcated from the cyst. Furthermore, there is no enhancement of the cyst wall with contrast. However the two small cysts at the postero-lateral aspect of the Left thyroid lobe are too small to characterize and may represent thyroid cysts or small branchial cysts

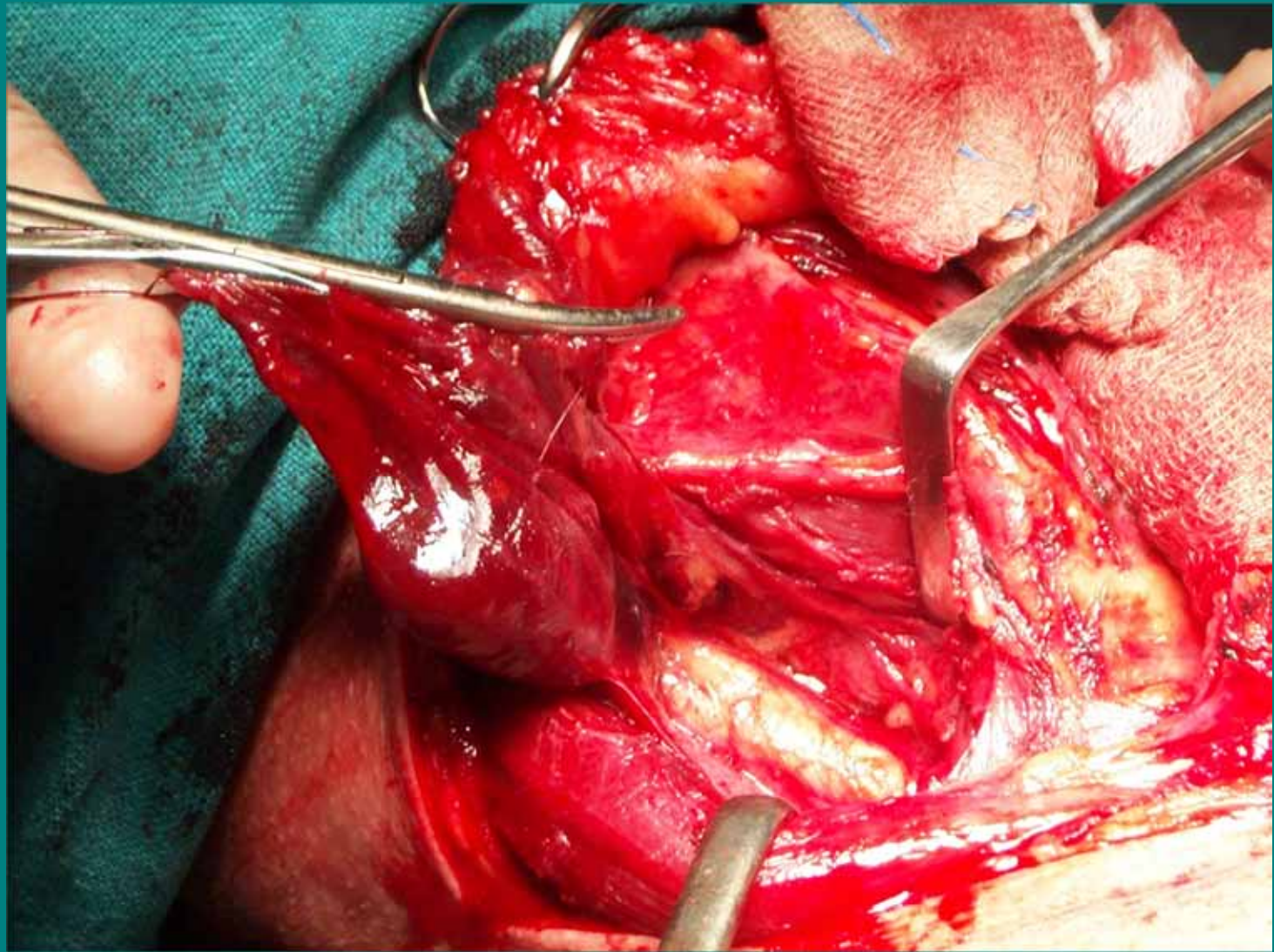
Surprise No 3:

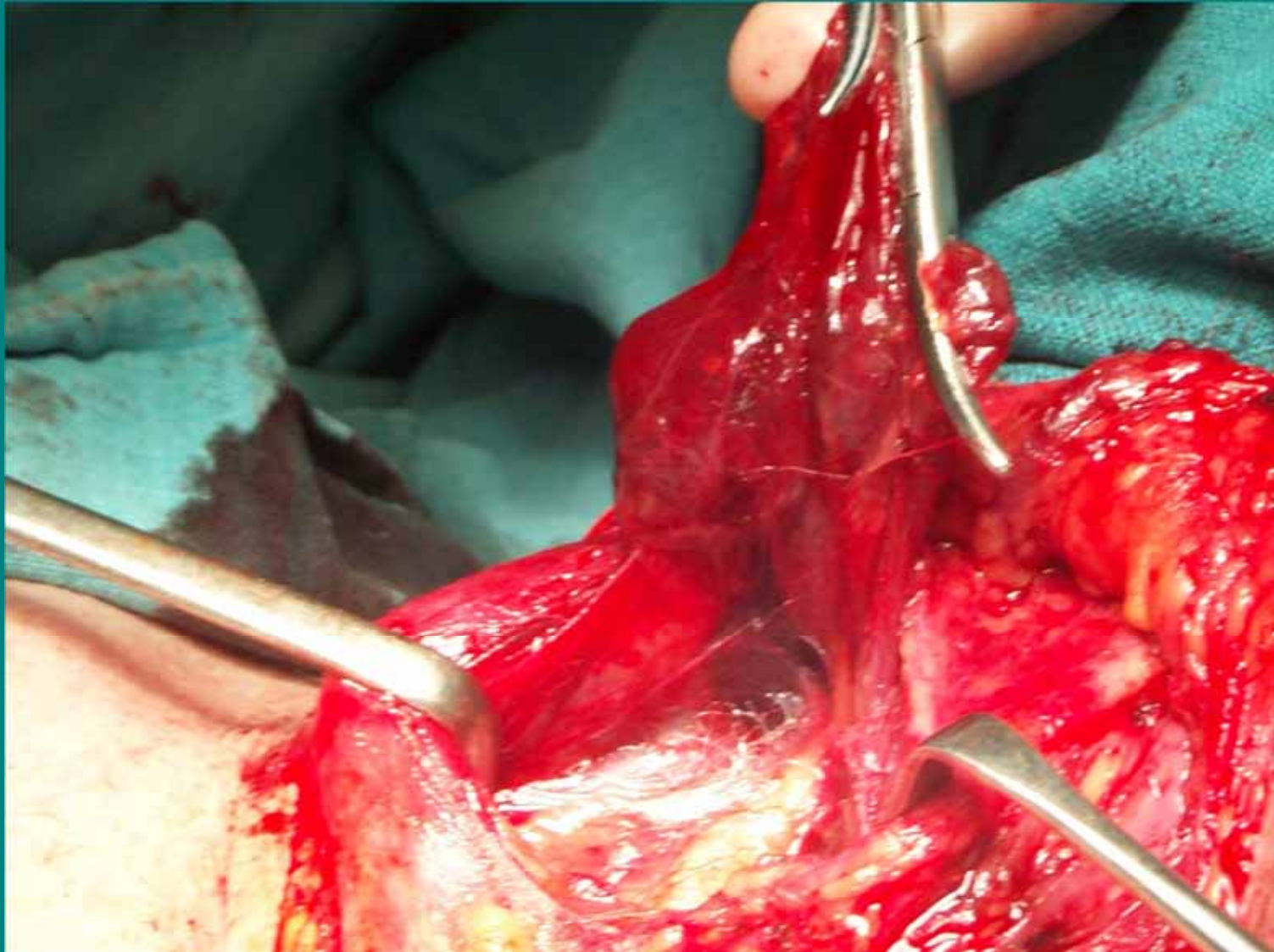
The cyst

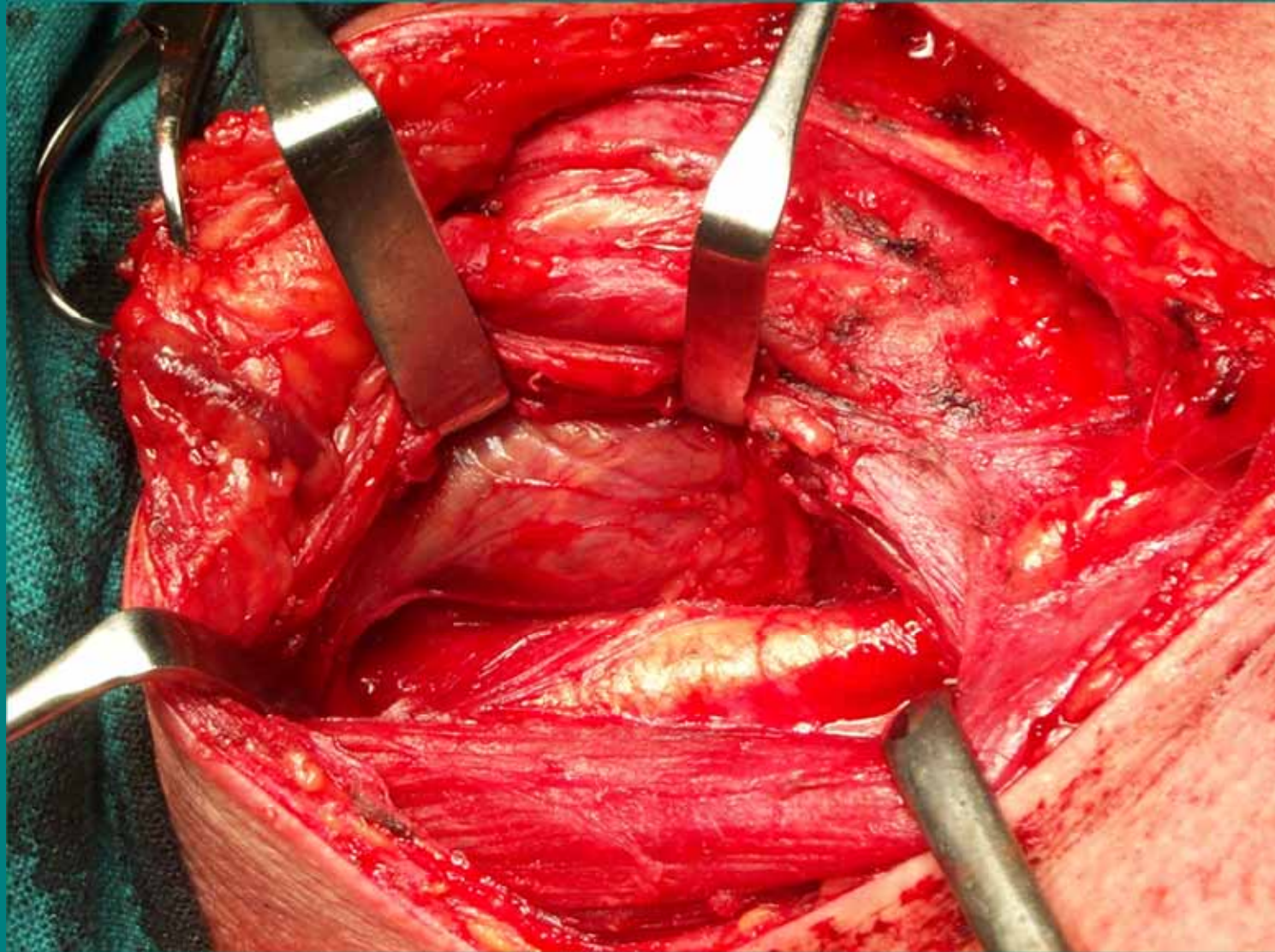


Operative notes

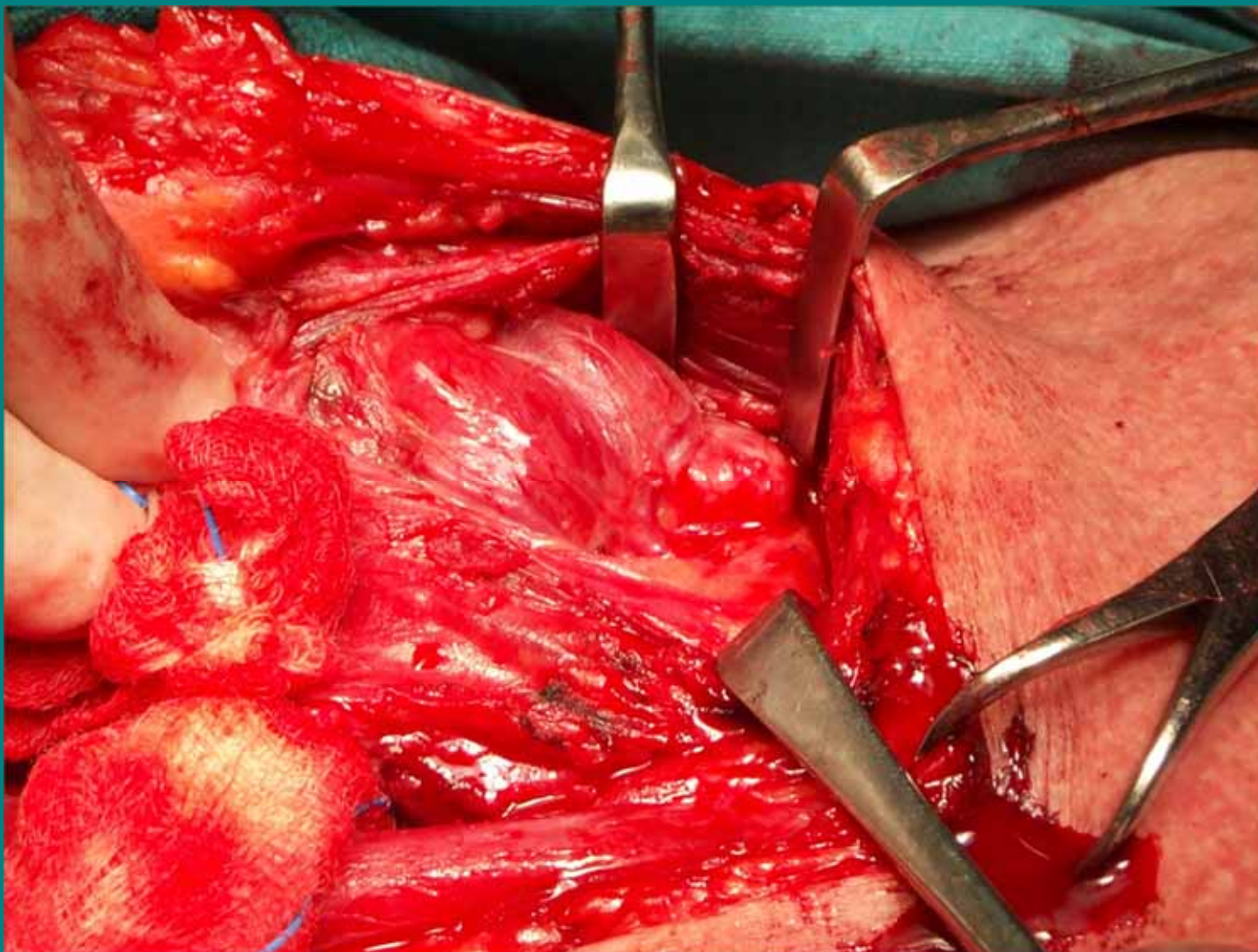
- R CERVICAL CYSTECTOMY & L HEMITHYROIDECTOMY
- Wide horizontal collar incision. Large thin-walled cyst full of haemosiderin stained serous fluid and invading all tissue spaces under R SCM muscle. ? cystic hygroma. Easy finger dissection from neck tissues and posterior aspect of R thyroid lobe. Parathyroids identified & left untouched.
- L thyroid lobe knobbly with multiple cysts & nodules. L thyroid lobectomy. Suction drain & subcuticular fast Vycril to skin.







The left thyroid lobe



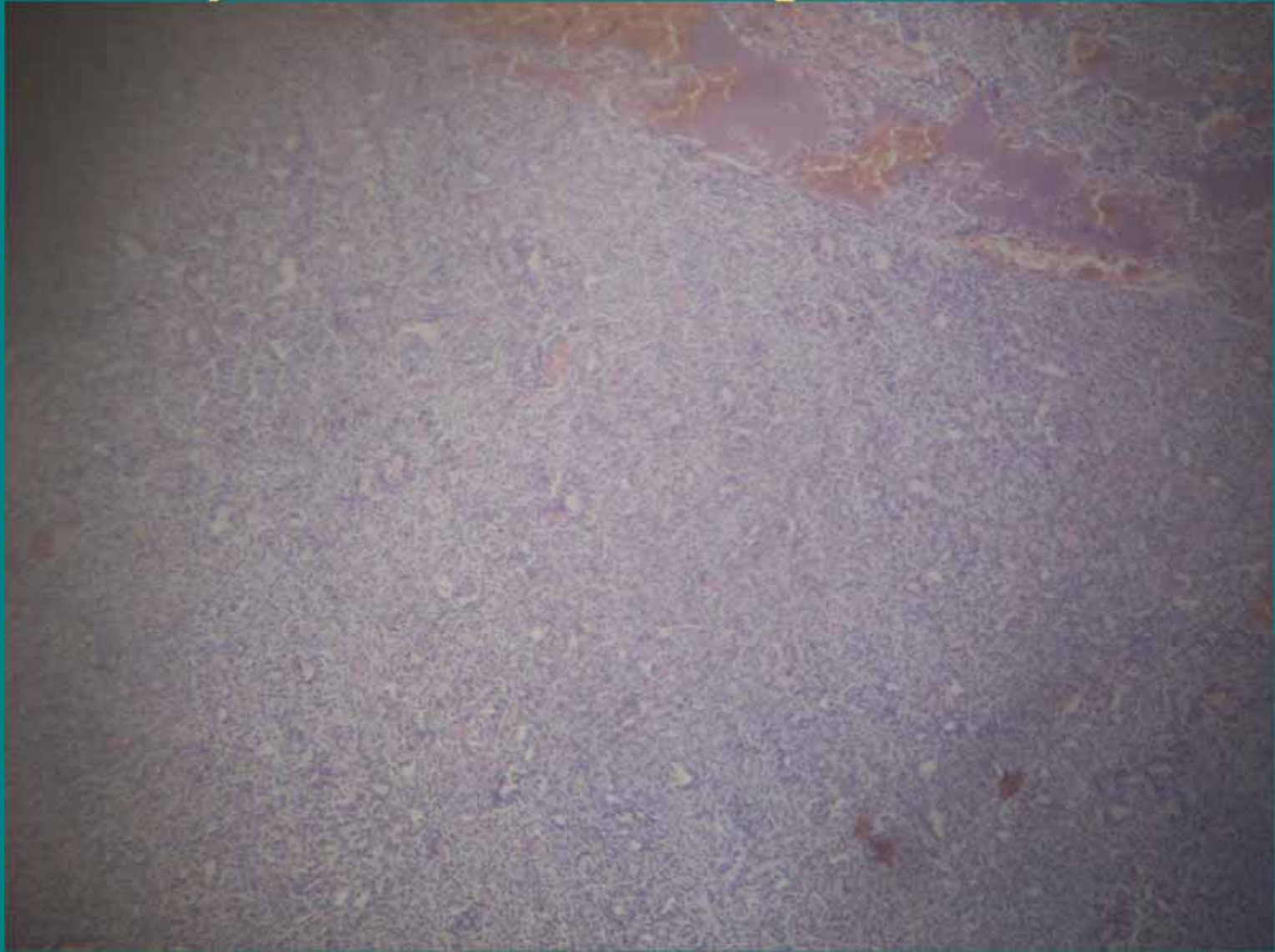
Surprise No 4:

The Histology Report

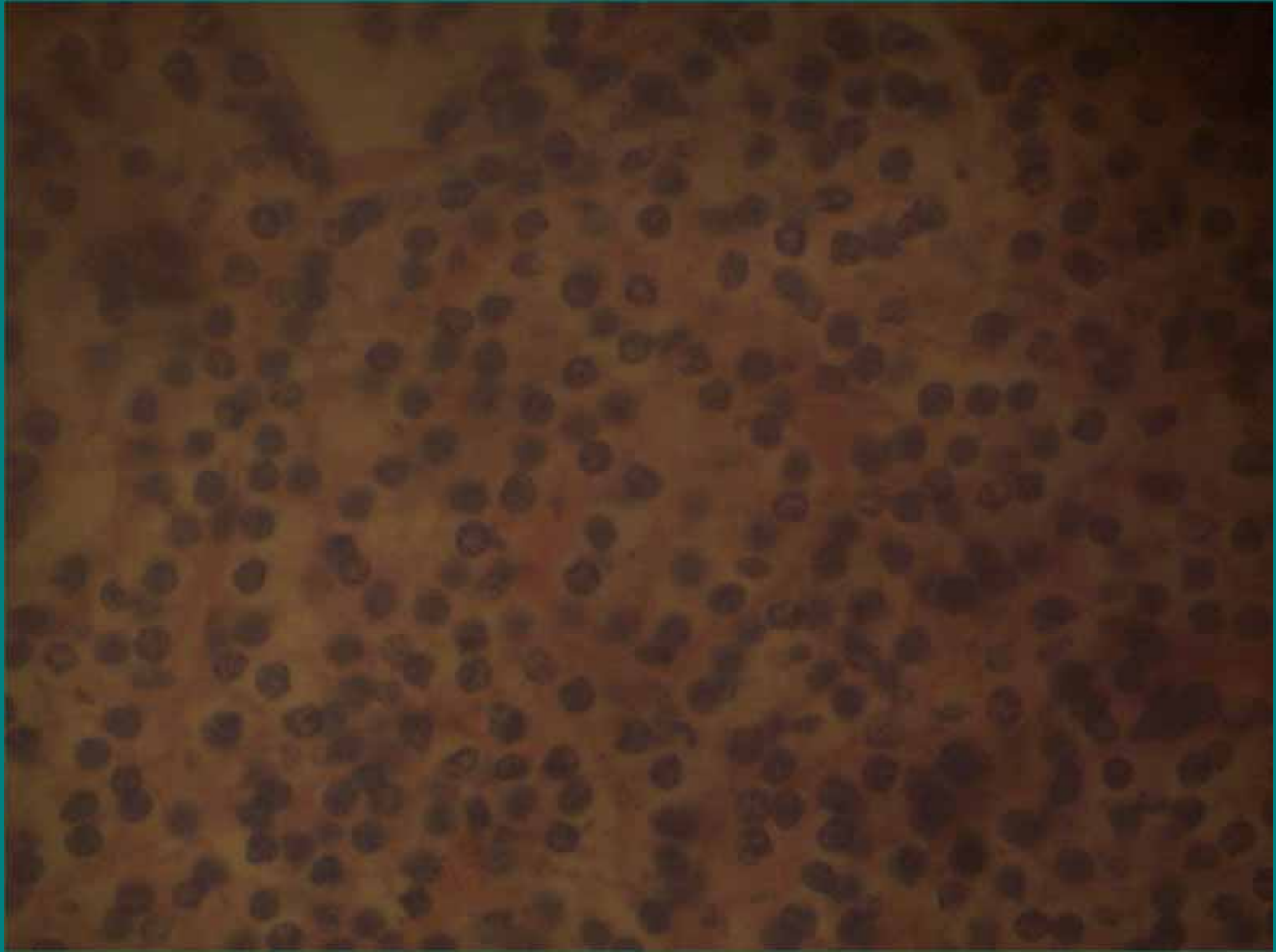
The report:

1. Cellular tumour showing predominantly parathyroid chief cells with marked cystic areas and evidence of recent haemorrhages. Consistent with a parathyroid adenoma with cyst formation.
2. The 2nd specimen is a multinodular colloid goitre to which is attached a parathyroid adenoma with identical features to those in the 1st specimen

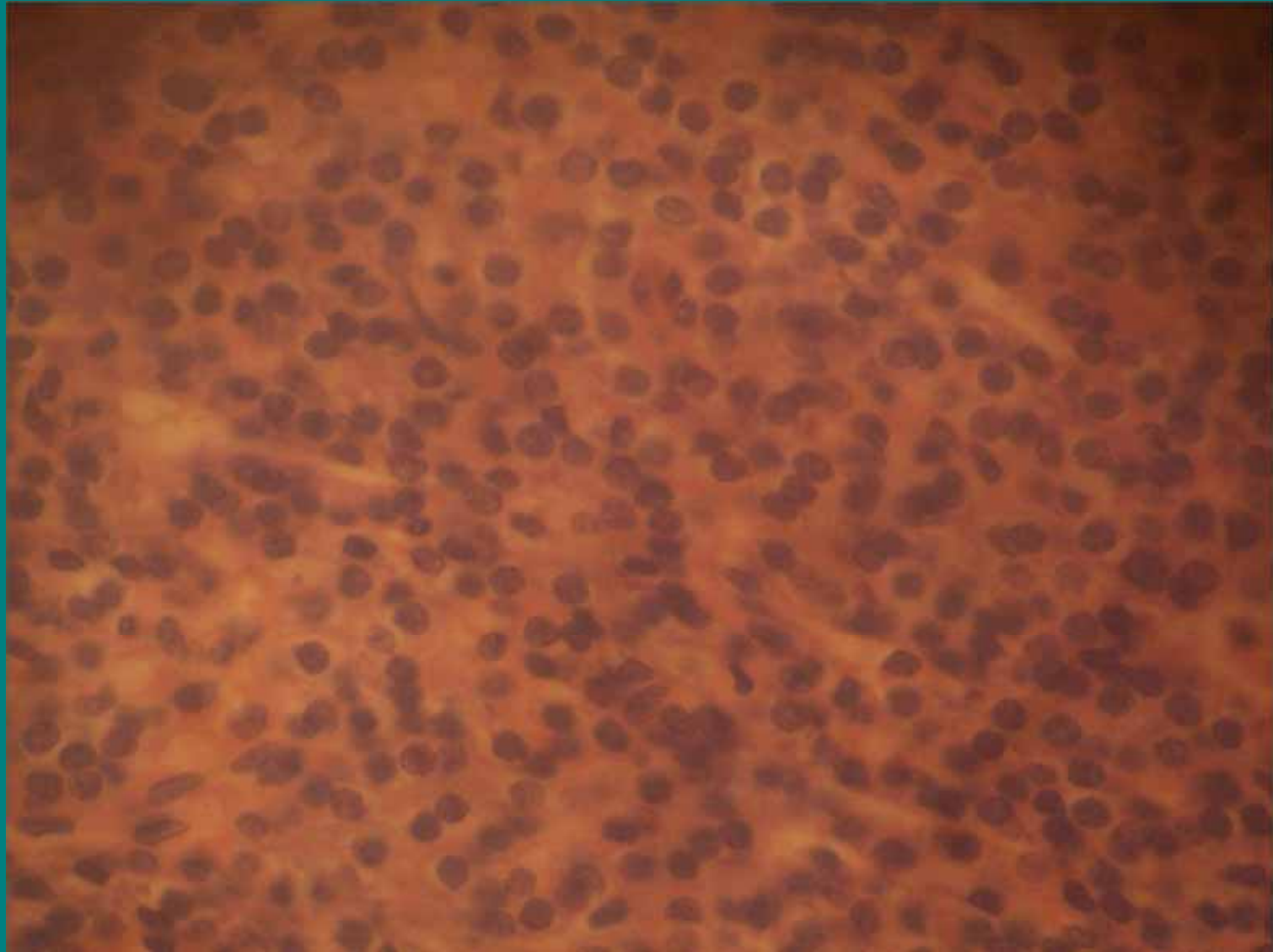
Low power view cyst R side



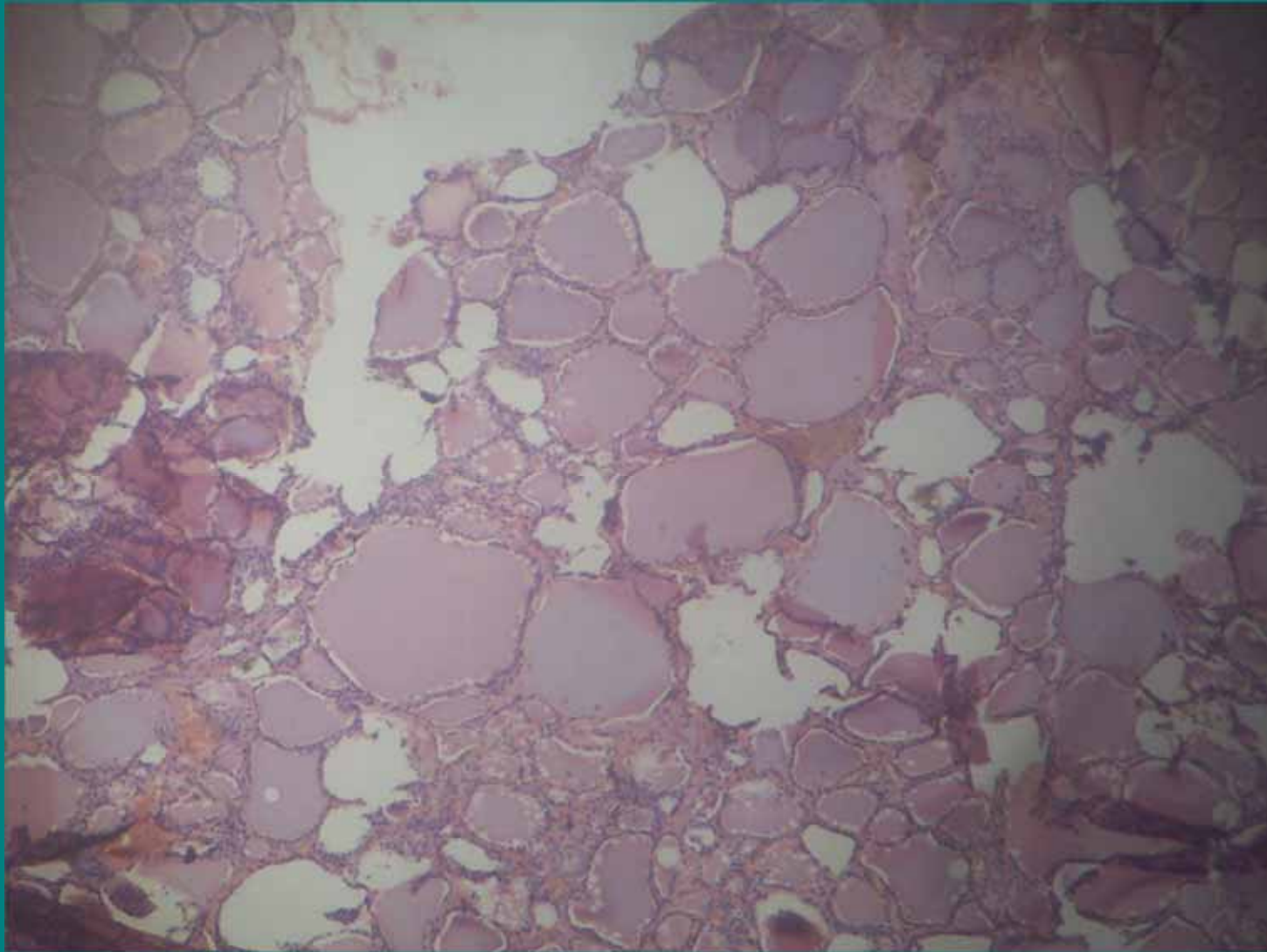
High power view cyst R side



High power view cyst L side



The Left thyroid lobe



Lab results(2 weeks post-op)

- Normal thyroid function tests
- Serum Calcium level high limit of normal (2.39mmol/L, - N: 2.2-2.55)
- Marginally high serum PTH (7.2pmol/L, N:1.6-6.9) – This is now back to normal, last test (26/09/06): 35 pg/ml (15-65)

Parathyroid cysts

- Rare. Until 1996, only some 200 cases reported in the English literature. (Alvi *et al* ,1996)
- Typical parathyroid lesions measure < 3cm on sonography
- Cystic changes, giant size, multiloculated configuration, inhomogeneous content and calcification uncommon (Gooding, 1993)

- Pathogenesis still unclear. Proposed classification (Mallette, 1994):
 1. *Ontogenous* – vestigial remnant of PTH primordial cells of 3rd & 4th pouches
 2. *Coalescent* – Due to coalescence of areas of cystic degeneration in a normal gland or an adenoma
 3. *Pseudo cyst* – cystic degeneration of an adenoma

- Most cysts are non-functioning, but if not, the serum Ca and PTH levels reported to be intimately associated with the size of the adenoma (Castleman and Roth 1978)
- Hypocalcaemic crisis may follow removal of a functional cyst, despite normal remaining glands... (oops!)

Characteristics of PTH cysts (Wang *et al* 1972)

- Usually loosely attached to thyroid with a definite cleavage plane
- A cyst with a whitish, tough membrane wall containing clear, watery fluid.
- A low lying position in the neck

Houston Case, 2002, extending in mediastinum, tough calcified capsule



Case reported in Brazil, 2006



Content of Brazilian cyst



In summary:

- A case of bilateral parathyroid cysts, including a giant cyst, associated with a multinodular goitre.
- Asymptomatic, but with a functioning cyst (the smaller one)
- Utterly misdiagnosed!

LESSONS TO BE LEARNT:

Keep an open mind, listen to your patient's history carefully, discuss investigative reports with your colleagues if they do not match your initial thoughts, but at the end of it all, remember that medicine is an inexact science!!

Merci.