

The importance of an intraoperative revision of all parathyroid glands, which may reveal additional pathologic changes and lead to an operation extension

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We present two case reports of patients who were diagnosed with **primary hyperparathyroidism** based on a parathyroid gland adenoma (PTA). The pathological parathyroid tissue was precisely localised by ultrasonography and scintigraphy before the surgery. In both cases **all four parathyroid glands were revised** by the surgeon which resulted in an **operation extension**.

First case report :

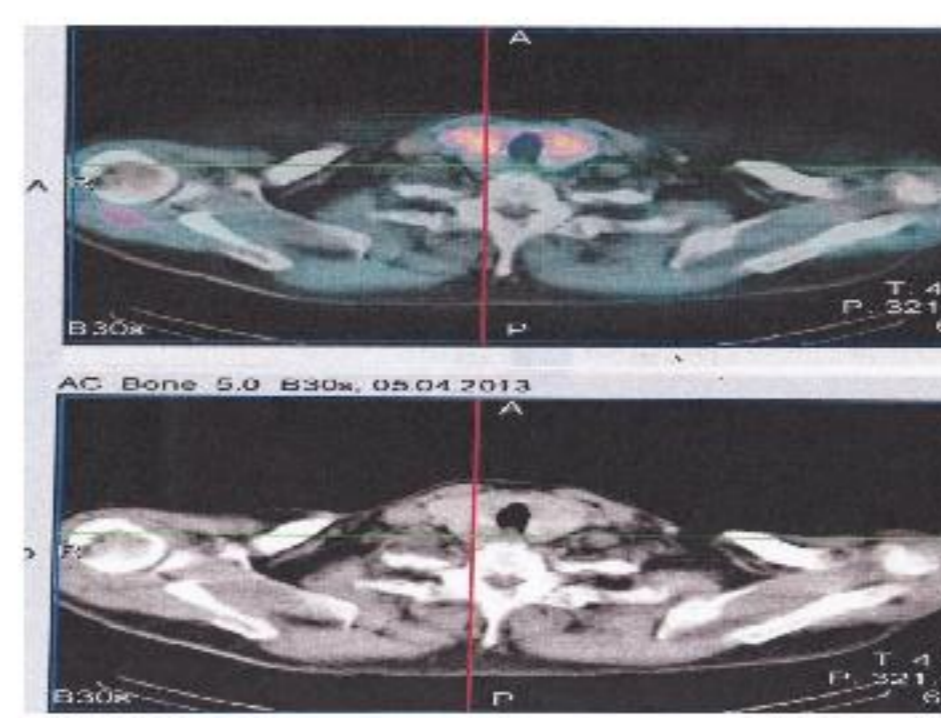
The first patient (male, 72 years old) was diagnosed with hyperparathyroidism in 10/2012. **Ultrasonography** showed a goiter with a solitary cystic nodule in the right lobe (picture 1, picture 2). **Scintigraphy** (Tc-MIBI) didn't show any hyperfunctional parathyroid tissue (picture 3). In the cystic fluid from the nodule (acquired by **FNAC**) we measured very high concentration of PTH (53 000 pmol/l).



Picture 1



Picture 2



Picture 3

The patient was recommended for a total thyroidectomy and extirpation of the right inferior PTA.

From the operation protocol and histology results :

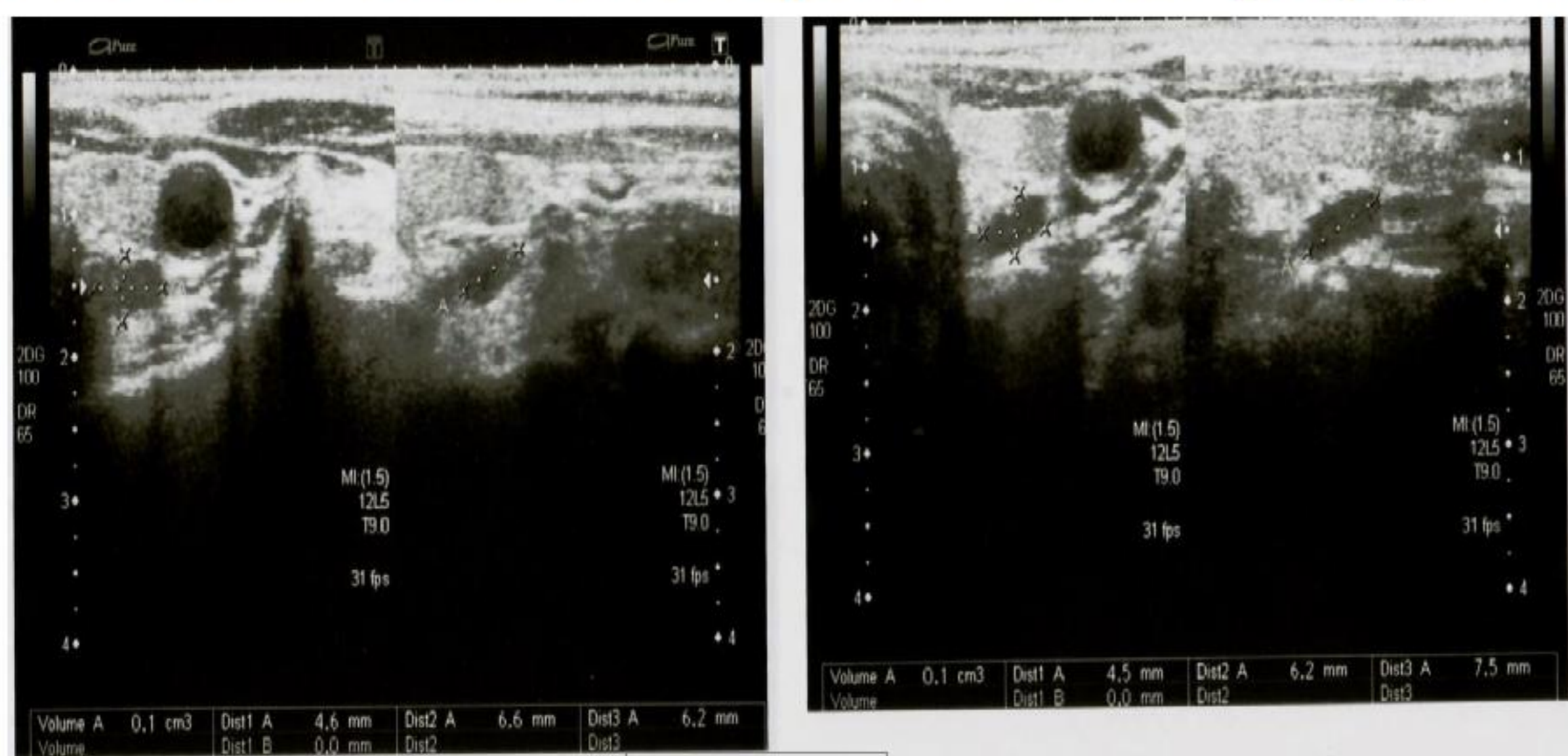
- 1/ extirpation of an obvious **adenoma of a left superior parathyroid gland !!!** 16x9x7 mm, which was confirmed histologically
- 2/ removal of a prominence of thymus with a suspicious parathyroid tissue – histologically normal parathyroid gland
- 3/ total thyroidectomy – histologically multinodular goiter.

The pathologist surprisingly **didn't describe any parathyroid tissue within or next to the right lobe** of the thyroid gland!

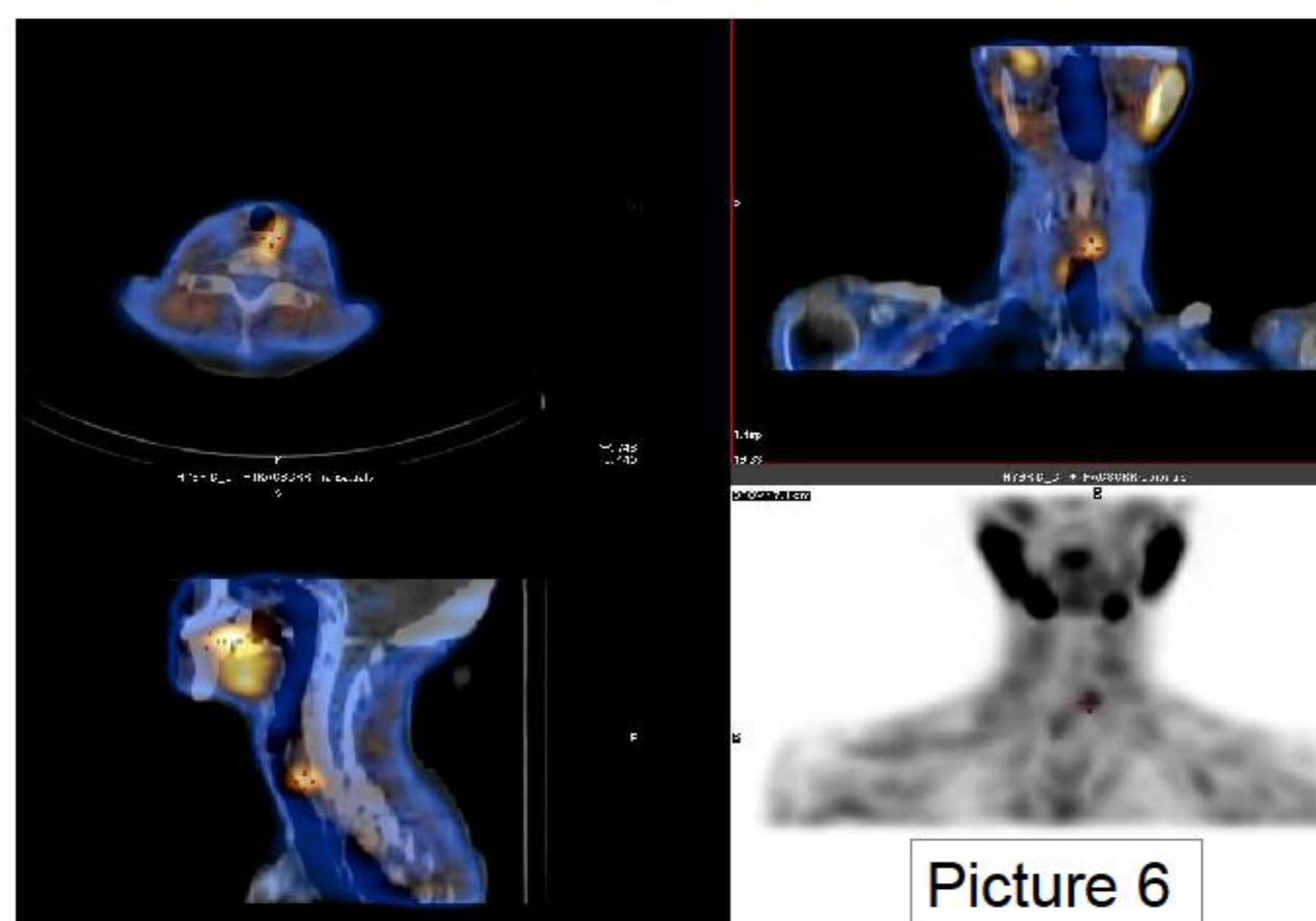
Second case report :

The second patient (female, 77 years old) was diagnosed with a hyperparathyroidism in 6/2015.

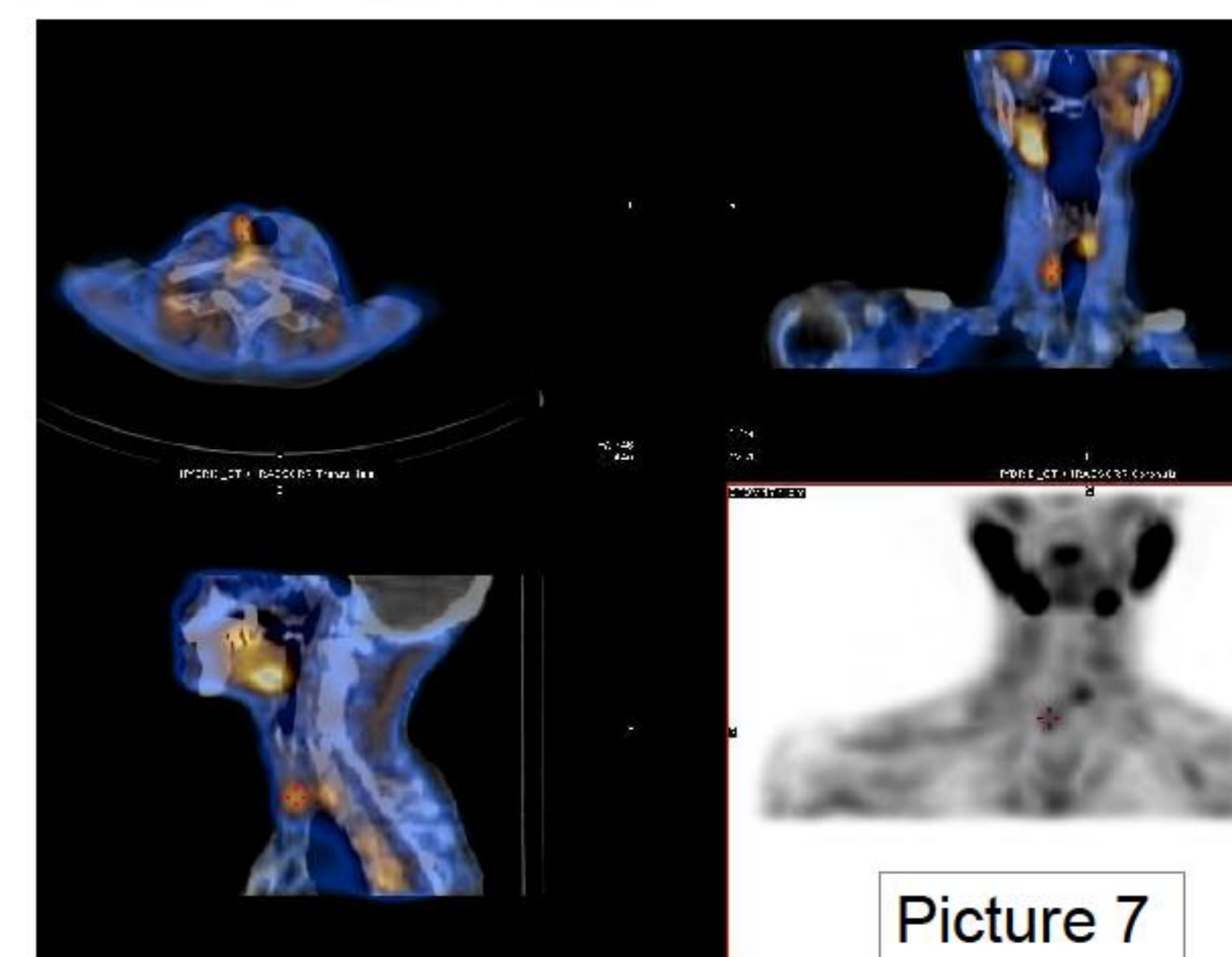
Ultrasonography showed a small thyroid gland with one isoechoic nodule in the right lobe of the thyroid gland and two suspicious hypoechoic nodules under the left lobe (picture 4). **Scintigraphy** revealed two PTAs – **left superior** (picture 5) **and right inferior** (picture 6).



Picture 5



Picture 6



Picture 7

The patient was recommended for a right-side hemithyroidectomy and extirpation of two PTAs.

From the operation protocol and histology results:

- 1/ definitely enlarged **left superior** parathyroid gland (15x10x4 mm) – histologically **PTA as anticipated**.
 - 2/ definitely enlarged **right superior** parathyroid gland (15x10x4 mm) – histologically **hyperplasia** of main parathyroid cells
 - 3/ partial resection of a slightly enlarged right inferior parathyroid gland (3x3 mm left) – histologically normal parathyroid gland tissue!
- In summary, the **surgeon** had doubts and **decided not to remove** the whole **right inferior** parathyroid gland and this **decision was correct**, because from the resected tissue the pathologist reported normal parathyroid tissue! **Furthermore**, another **PTA of the right superior** parathyroid gland was extirpated.

Conclusion :

Those two cases highlight the **important role of an intraoperative revision of all parathyroid glands** by the surgeon.

In the first case there was **high PTH detected in the cystic nodule in the right lobe** of the thyroid gland (or under it), but **neither surgeon nor pathologist found PTA**. Despite the scintigraphy didn't show any hyperfunctional tissue on the left side of the neck, the surgeon had removed and the pathologist confirmed **another PTA of a left superior parathyroid gland!**

In the second case the patient was recommended for surgery with **two suspicious PTAs of a left superior and right inferior** parathyroid gland. Left superior PTA was obvious and confirmed histologically. But **the surgeon had doubts about the right inferior PTA**. Therefore he made only a partial resection and this was a good decision, because histologically it was normal parathyroid tissue! Moreover, during the peroperative revision there was found **one more PTA of a right superior** parathyroid gland.

In both cases the surgeon's approach was beneficial for the patient and both operation procedures were therefore curative.

