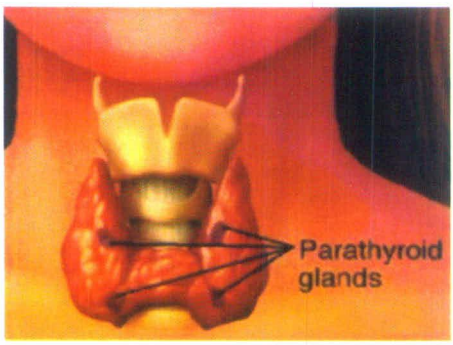
SAIFEE HOSPITAL

under the auspices of Saifee Hospital Trust Reg. No. E-5448 (Bom)

DEPARTMENT OF NUCLEAR MEDICINE

Parathyroid Imaging Patient Information



Using nuclear medicine to look for liver abnormalities

Parathyroid glands help maintain serum calcium and phosphorus homeostasis in conjunction with calcitonin and vitamin D by secreting parathyroid hormone (PTH). PTH is an 84-amino acid chain that is cleaved in the liver to its active form, producing a biologically active N-terminal segment and an inactive C-terminal fragment. Secretion of PTH is stimulated by low levels of ionized calcium and suppressed by high levels of ionized calcium.

PTH protects the body against hypocacemia through a combination of direct and indirect effects, mediated most likely through an intracellular cAMP mechanism at three sites: kidney, bone, and gut. PTH, with the help of calcitriol and magnesium, stimulates osteolysis and release of calcium and phosphorus from bone into extracellular fluid. PTH increases reabsorption of calcium and magnesium in the kidney. PTH also increases the excretion of phosphorus and bicarbonate in the kidney. The excretion of phosphorus is increased so that it does not bind to ionized calcium and decrease its concentration. The excretion of bicarbonate causes a relative acidosis which results in less protein binding of calcium. PTH indirectly enhances intestinal absorption of calcium by increasing the synthesis of the active form of vitamin D from its inactive form, 25- hydroxyvitamin D in the kidney. All three sites of calcium homeostasis are believed to be dependent on magnesium.

What is a Parathyroid Scan?

A parathyroid scan is sometimes called a parathyroid localization scan or parathyroid scintigraphy. This scan uses radioactive pharmaceuticals that are readily taken up by cells in the parathyroid glands to obtain an image of the glands and any abnormally active areas within them.

Who is it for?

The parathyroid glands, embedded in the thyroid gland in the neck, but separate from the thyroid in function, control calcium metabolism in the body. The parathyroid glands produce parathyroid hormone (PTH). PTH regulates the level of calcium in the blood.

Calcium is critical to cellular metabolism, as well as being the main component of bones. If too much PTH is secreted, the bones release calcium into the bloodstream. Over time, the bones become brittle and more likely to break. A person with levels of calcium in the blood that are too high feels tired, run down, irritable, and has difficulty in sleeping. Additional signs of too much calcium in the blood are nausea and vomiting, frequent urination, kidney stones and bone pain. A parathyroid scan is administered when the parathyroid appears to be overactive and a tumor is suspected.

How do you prepare?

No special preparations are necessary for this test. It is not necessary to fast or maintain a special diet. The patient should wear comfortable clothing and no metal jewellery around the neck.

- All children have to patent IV Vein flow during the procedure.
- The pediatric patients should be accompanied by Mother or Relatives carrying nappy pads with them.

All past and present Medical reports should be brought by the patient.

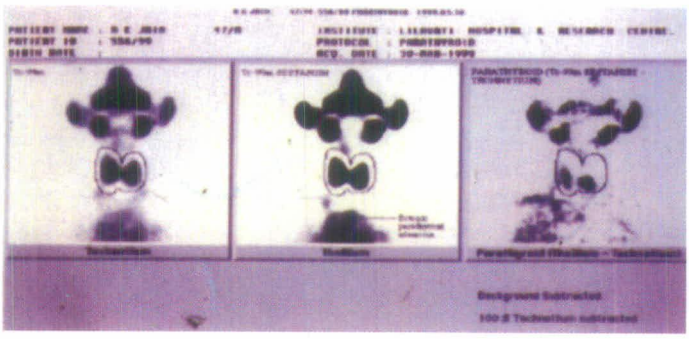
How is it done?

A parathyroid scan is a non-invasive procedure that uses two radiopharmaceuticals (drugs with a radioactive marker) to obtain an image of highly active areas of the parathyroid glands. The test can be done in two ways.

If the test is to be performed immediately, the patient lies down on an imaging table with his head and neck extended and immobilized. The patient is injected with the first radiopharmaceutical. After waiting 20 minutes, the patient is positioned under the camera for imaging. Each image takes 5 minutes. It is essential that the patient remain still during imaging.

After the first image, the patient is injected with a second radiopharmaceutical, and imaging continues for another 25 minutes. Total time for the test is about one hour: injection 10 minutes, waiting period 20 minutes, and imaging 30 minutes.

Another way to do this test is as follows. After the first images are acquired, the patient returns 2 hours later for additional images. Time for this procedure totals about 3 hours: injection 10 minutes, waiting period 2 hours and 20 minutes, and imaging 30 minutes.



After the test

You should move slowly when getting up from the scanner table to avoid any dizziness or light headedness from lying flat for the length of the procedure.

You may be instructed to drink plenty of fluids and empty your bladder frequently for about 24 hours after the procedure to help flush the remaining radionuclide from your body.

The IV site will be checked for any signs of redness or swelling. If you notice-any pain, redness, and/or swelling at the IV site afler you return home following your procedure, you should notify your physician as this may indicate an infection or other type of reaction.

You may resume your usual diet and activities, unless your physician advises you differently

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