Medical Tracers

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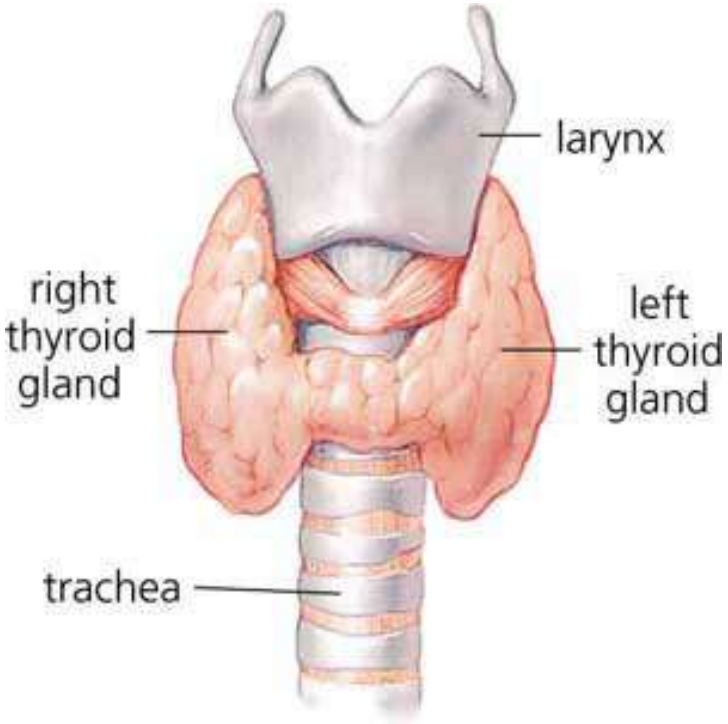

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TRACERS…

- A mean by which certain substances can be identified or followed, as a radioactive tracer.

-Radioactive tracers are used to investigate a patient's body without the need for surgery

-Gamma emitters and sometimes beta emitters are used. This is because gamma rays and beta particles can pass through skin

WHICH RADIOISOTOPES CAN BE USED AS MEDICAL TRACERS?

-A radioisotope which is used inside the body must be a beta emitter or a gamma emitter because both of them can penetrate body tissue and be detected outside the body

-An alpha emitter cannot be used because the alpha particles cannot penetrate the body tissue and would not be detected.

-A medical tracer must have a short half-life because this will minimize the harm done to the cells of the body.

THYROID GLAND

-If a patient is made to drink a solution of sodium iodide that has been doped with radioactive iodine-131, most of it will end up in the thyroid gland.

A special camera can capture the radiation emitted by the iodine-131, and an image of the gland can be constructed.

An assessment can then be made about the shape, size and functioning of the gland

Medical tracers

Iodine-131 is a heavy radioactive isotope of iodine with a half-life of 8 days. It is used in a sodium salt to diagnose thyroid disease and to treat goiter

A symptom of hyperthyroidism is a very swollen region in the neck.

Radioactive isotopes can be used as medical tracers