

## **THYROID ABLATION: A non surgical and scar less treatment method that gives immediate relief to the patient**

Our thyroid gland is situated in the frontal aspect of the lower part of the neck and a nodule within it is a solid or fluid filled lump (abnormal growth) that occurs within it. Thyroid nodules are actually quite common. By the age of 60, half of all people have them. Thyroid nodules are three times more common in women than in men. 30% of 30-year-old women will have a thyroid nodule. One in 40 young men has a thyroid nodule. More than 95% of all thyroid nodules are benign (non-cancerous growths), a small portion of these can be malignant (cancerous). This can be evaluated with a simple day care test called fine needle aspiration cytology (FNAC), which is best performed by an Interventional Radiologist under Ultrasound guidance. This is a walk in walk out procedure done without even the need for local anaesthesia using a needle even smaller than what is used for routine blood tests. The results of the FNAC are available in less than 24 hours in most hospitals and clinics.

Most thyroid nodules do not cause symptoms. Thyroid nodules are discovered incidentally during a routine check up or on imaging tests done for completely unrelated reasons. Occasionally, patients themselves find thyroid nodules by noticing a lump in their neck while looking in a mirror or noticed by their loved ones. Abnormal blood tests may occasionally be the reason a thyroid nodule is found. Thyroid nodules may produce excess amounts of thyroid hormone causing hyperthyroidism. Very rarely, patients with thyroid nodules may complain of pain in the neck, jaw, or ear. If large they can compress the windpipe or oesophagus and this may cause difficulty with breathing and swallowing. Even less commonly, hoarseness can be caused if the nodule invades the nerve that controls the vocal cords.

Once a thyroid nodule has been diagnosed we have to look at treatment options, which is usually surgery however more recently non surgical option like Ablation can be performed as a minimally invasive day care procedure. If there is confirmation of cancer within the thyroid nodule its best to have surgery however as almost 95 % of these nodules are benign (non cancerous) it's worth considering the ablation option. There is also a need for medical management in some patients with hyperthyroidism and this is usually managed by your endocrinologist.

The first Ablation using Radiofrequency ablation device for a benign thyroid nodule was done in 2002 by Prof. Jung Hwan Baek in Seoul, Korea. Since then many thousands of patients have had these successful ablation procedures in all parts of the world. Radiofrequency ablation (RFA) is a percutaneous treatment that results in thermal tissue necrosis and fibrosis. As a result of this process, the nodules shrink. Clinical trials in Italy and South Korea demonstrated 50 to 80 percent durable nodule shrinkage after thyroid nodule RFA.

Thyroid ablation is done under local anaesthesia and very mild intravenous sedation using just ultrasound machine to guide the entire procedure. This procedure can be performed by most Interventional Radiologist in any hospital that has an ultrasound machine which luckily is very widely available in these days. It is minimally invasive and completely scar less and is done as day care procedure/surgery. With thyroid ablation the patient can avoid unnecessary surgery for a minor problem and more importantly avoid any small chance of potential complications of surgery or general anaesthesia. The potential complications of thyroid ablation are very rare (1.4% to 3.3%) in a large series which reported on a total of 1543 nodules treated. The minor complications like voice change, hematoma, vomiting, skin burn which were self limiting was just 3.3%. The major complications like brachial plexus injury, tumour rupture, abscess formation with tumour rupture and hypothyroidism were just 1.4 %. Even these major complications in those unlucky patients recovered and treated with medication and minor surgery. These results clearly show that when compared to surgery it is much safer and equally effective.

There are many tools to ablate a thyroid nodule like Radiofrequency, microwave, laser, cyrotherapy and high intensity focussed ultrasound (HIFU) however Radiofrequency ablation (RFA) is most widely used and available. This has also shown the best long term results in reported literature. The ablation procedure is some centres are even cheaper than thyroid surgery but more importantly it can avoid unnecessary hospital stay. This in turn makes thyroid ablation more cost effective to the patient and nation as a whole. Today in India Ablation procedures are routinely done in various cancers of the liver, lung, kidney and bone. These are done

as curative procedures and in many cases this has completely avoided the need for complex surgery for these needy patients. Now ablation of thyroid nodule will serve as a great boon to our patients in the years to come.

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