

Unexplained Hoarseness of Voice after Radioactive Iodine Therapy; A Rare Complication

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Case Report

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Abstract

Hoarseness of voice is extremely rare after radioactive iodine therapy for Graves's disease. Here we report a case of 29 year old lady who received one dose of 15mCi of RAI. After one day she presented with severe hoarseness of voice, severe pain in neck and some sore throat. The pain and sore throat resolved after a week with NSAID therapy but her hoarseness of voice persisted. She underwent direct laryngoscopy twice but showed no abnormality in vocal cord. Later on her voice started to improve and by about 6 months largely recovered. This case is in addition to few rare case reports in medical literature in which RAI caused hoarseness of voice.

Keywords: Radioactive iodine; Hoarseness of voice; Thyroid gland

Introduction

Graves' disease is a common thyroid disorder. It is treated with radioactive iodine, antithyroid drugs or surgery [1]. The most effective treatment and usually the treatment of choice is radioactive iodine in Graves' disease. The only absolute contraindication to radioactive iodine is pregnancy and breast feeding otherwise it is considered as a very effective and safe treatment. The few side effects reported include exacerbation of graves ophthalmopathy [1]. It is not associated with any increased risk of malignancy or infertility [2]. As the iodine is also excreted in saliva, some patients get radiation sialadenitis [3] that is usually transient. Severe symptoms of such complaints can be experienced in patients taking high dose of radioactive iodine as patients with thyroid cancer. Very rarely laryngeal nerve palsy is also reported with its use that can be presented with hoarseness of voice [4]. There has also been reports of primary hypothyroidism after RAI. Here we report a case

with such rare presentation as a side effect of RAI for the awareness of physicians treating thyroid disorders.

Case Report

This is a case of 29 year old lady who was diagnosed to have thyrotoxicosis 3 months post-partum because of palpitation and heat intolerance. TSH at that time was found out to be <0.006 and FT4 2.6nmol/l(0.89-1.76). She had no previous history of thyroid dysfunction. As she was lactating, thyroid scan was not done and initial diagnosis of post-partum thyroiditis was made that was also reported on ultrasound thyroid. As her symptoms continued for a longer period with no improvement, a diagnosis of Graves' disease was considered. She was then treated with neomercazole and her symptoms improved. She went into remission and her neomercazole was stopped after about 1 year. Again after about 2 years she developed same symptoms of thyrotoxicosis and was reviewed by an endocrinologist. Her labs showed TSH <0.006 and FT4 3.22nmol/l(0.89-1.76). This time Tc⁹⁹

scan was done which showed diffuse increased uptake of thyroid gland consistent with the diagnosis of Graves' disease. She was offered the option of radioactive iodine that she opted. After receiving 15mCi of RAI she developed severe neck pain and hoarseness of voice on the next day. Initially treated with nonsteroidal anti-inflammatory drugs, her pain and sore throat resolved but hoarseness of voice continued. For these symptoms she underwent direct laryngoscopy twice that showed no vocal cord palsy. She later on developed hypothyroidism and was treated with thyroxine. With the passage of time her voice started to improve without any intervention and by 6 months her symptoms resolved mostly but still she complains of mild hoarseness of voice that was clinically not much evident.

Discussion

Radioactive iodine is well-established treatment of thyroid disorders. There is a dose difference between benign vs malignant thyroid disorders. Thyroid gland is in proximity of laryngeal nerves and there palsies are reported in malignancies. Few case reports are also present for recurrent laryngeal nerve palsies after radioactive iodine treatment but they are very rare [5-9]. Interestingly all these cases were of right recurrent laryngeal nerve palsy and the cause of this one sided recurrent laryngeal nerve palsy is still undiagnosed. Recurrent laryngeal nerve damage is very likely in thyroid surgery if the surgeon is not experience enough to avoid

this mishap therefore high volume surgeon should be consulted [1].

Although this complication is not mentioned in endocrine books but as the cases are being reported, this should be included as a rare complication. This lack of knowledge about this rare but disturbing condition causes very much frustration on the part of both the patient and physicians. The few postulated theories about the cause of this hoarseness include stretching of recurrent laryngeal nerve and this hypothesis is more affirmed by the fact that surgical drainage of acute suppurative thyroiditis causes marked improvement of the vocal cord mobility [10].

All cases are not associated with vocal cord paralysis as Volpe and Johnson described hoarseness of voice in 8 patients of subacute thyroiditis in whom direct laryngoscopy was negative for any visible signs of recurrent laryngeal nerve paralysis [11]. Holl-Allen describes it as a result of acute inflammation that leads to edema or thrombosis of vascular supply of the nerve causing dysfunction [12]. If this is the case then steroids and anti-inflammatory drugs should have a role in these conditions but literature is not reporting any benefit of these measures but they are usually used in severe cases. Our patient was also prescribed non-steroidal anti-inflammatory drugs that improved her pain but not hoarseness of voice. We did not use steroids in our case. But as this is a very disturbing condition for the patients, it may be acceptable to use such empirical measures.

Author	Case summary	RAI used	Outcome
Craswell, 1972	49 year old lady with toxic multinodular goiter	5mCi	Right Vocal cord paralysis, recovery after 3 weeks.
Snyder, 1978	61 year old lady with graves' disease	7.3mCi	Right vocal cord paralysis, no recovery.
Robson. 1981	65 year old man with hyperthyroidism	6mCi	Right vocal cord paralysis, full recovery after 15 months.
Coover, 1999,2000	75 year old lady with right toxic nodule	29.3mCi	Right vocal cord paralysis, no recovery.
Salem, 2009	73 year old man recurrent thyrotoxicosis	15mCi	Right vocal cord paralysis, no recovery.
Present Study	29 year old lady with graves' disease	15mCi	Hoarseness of voice but no vocal cord paralysis, recovery in 6 months.

Table 1: Literature review of hoarseness of voice after radioactive iodine therapy

In conclusion the hoarseness of voice after radioactive iodine therapy is a rare but well reported side effect and should be known to the patients and physicians alike so

that actual cause could be found out. All such cases are not a result of vocal cord paralysis but it can occur without any visible abnormality. Although with passage of

time these symptoms usually improve but vocal cord paralysis may persist as described by others. For this reason, all the physician who are actively involved in radioactive iodine treatment should know these facts so that they can recognize this complication and can counsel and manage the patients accordingly.

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