



CASE REPORT

Parathyroid Autotransplantation Following Total Thyroidectomy – A Case Report

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ABSTRACT

A 70 year old woman with one year history of enlarging goiter with associated dysphagia, hoarseness and tracheal deviation underwent total thyroidectomy. One of the parathyroid glands was sliced into approximately 1 mm pieces and implanted into the right sternocleidomastoid muscle. Frozen section was not obtained but histology of the specimens postoperatively confirmed the goiter to be follicular carcinoma and the implanted tissue parathyroid gland. The patient had bilateral vocal cord paralysis for which a tracheostomy was done. She was maintained on oral thyroxine and on the 9th postoperative day, she developed physical signs of hypocalcemia. Intravenous calcium gluconate was administered to the patient and she was continued on oral calcium and vitamin D . This was stopped after 10 days and the patient never had symptoms of hypocalcemia and the serum calcium remained normal. She was followed up for 3 months after which she was lost to follow up.

Keywords : Parathyroid; Autotransplantation; Thyroidectomy

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A 70 year old woman was referred from a private hospital with a one year history of anterior neck swelling which increased from the size of her thumb to that of an egg. It was painless with no symptoms of hyper- or hypothyroidism. She had hoarseness and dysphagia to solids but no features suggestive of distant metastasis. She was neither hypertensive nor diabetic. She had never smoked nor used tobacco in any form. There was no family history of thyroid cancer or other malignancies. Physical examination revealed a 12cm by 10cm firm goiter with tracheal deviation and no palpably enlarged cervical lymph nodes. Indirect laryngoscopy showed healthy vocal cords with normal motility. Fine needle aspiration cytology found no malignant cells in the smear. Thyroid function test was normal. Ultrasonography of the neck showed bilateral enlargement of the thyroid gland with multiple areas of hypodensities consistent with necrosis and areas of calcific densities.

No enlarged lymph nodes were seen and the common carotid and jugular vessels were not affected. Intraoperative findings were a hard multinodular goiter with the right lobe adherent to the posterolateral bed. Total thyroidectomy was done and one of the parathyroid glands was sliced into about 1 mm pieces implanted into the right sternocleidomastoid muscle after making a pocket in the muscle. Facilities for frozen section were not available so a specimen of the implanted parathyroid gland was sent for histology together with the thyroid gland. The other three parathyroids were not reimplanted. The histology result came out about one week postoperatively to indicate invasive follicular carcinoma and confirm the implanted tissue as parathyroid gland. The patient developed severe upper airway obstruction post-extubation for which a tracheostomy was done. The patient was commenced and maintained on oral thyroxine 100ug daily but did not receive prophylactic calcium or vitamin D. On the 9th postoperative day, she developed spasms of the fingers and both Trousseau's and Chvostek's signs were positive. Her total serum calcium was however normal and the laboratory was not equipped to determine free ionized calcium. She was started on a combination of calcium and ergocalciferol (calcium lactate 300mg, calcium phosphate 150mg, ergocalciferol 400 units) following which the features of hypocalcemia disappeared. The patient was eventually discharged after three weeks on admission and followed up at the out-patient clinic. Approximately five weeks

postoperatively, the oral calcium and vitamin D was stopped and patient instructed to report to the hospital if she developed any spasms or tingling sensation. Patient did not develop any other symptoms of hypocalcemia. A repeat direct laryngoscopy done 6 weeks after discharge showed bilateral immobile vocal cords. The patient was followed up for only three months after which she was lost to follow up.

DISCUSSION

Hypoparathyroidism is a rare condition that almost always occurs due to removal of or damage to the parathyroid glands during thyroid or parathyroid surgery [1]. The incidence is higher in total or completion thyroidectomies [2]. Although subtotal thyroidectomy is no longer advocated in benign thyroid disease and near total thyroidectomy is usually performed to preserve the recurrent laryngeal nerve, in our environment where many patients come from rural areas where there may be non-availability of calcium and vitamin D we still take steps to avoid permanent hypocalcemia. In malignant goiters, especially locally advanced ones, removal of the parathyroids may be inevitable. Apart from total thyroidectomy and other radical neck operations, the other common indications for the reimplantation of the parathyroids are primary parathyroid hyperplasia, secondary hyperparathyroidism and recurrent or persistent hyperparathyroidism [3-5]. The function of reimplanted parathyroid tissue has been documented in animal studies [6,7] and also in patients with abnormal parathyroid glands [8-10]. Transient hypoparathyroidism has been documented and there is a possibility that this might have occurred in our patient. We were severely limited by our inability to determine the levels of parathyroid hormone especially in the early postoperative period to rule out this possibility. For autotransplanted abnormal glands, success rates range from 55 % to 100 % [9-11]. Clinical and biochemical function have also been reported in more than 80 % of patients who had autotransplantation of normal parathyroid in their forearms [12,13]. A frozen section of the parathyroid is recommended before re-implantation [14,15]. A more recent study, however, is of the view that this may not be necessary for correct identification of the parathyroid gland [16]. Frozen section was not routinely available in our centre so we obtained confirmatory histology of the reimplanted tissue postoperatively. The re-implantation technique we used was to cut the parathyroid into tiny bits which was then deposited in a pocket made in the sternocleidomastoid muscle. Other methods of preparing the gland like mincing and homogenization into a paste have been described [17,18]. In patients with hyperparathyroidism, a forearm muscle like the brachioradialis is used to avoid reoperation in the neck in case of recurrence and for easy monitoring of graft function [9]. After the re-implantation, the index patient still had transient hypoparathyroidism and had to receive vitamin D and calcium tablets. Within a period of about five weeks the features of hypocalcemia eventually disappeared. In a study by Lo C. Y. and Tam S. C. normal parathyroid tissue resumed function 2 to 4 weeks after reimplantation and became fully functional at 8 weeks [19].

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