SURGICAL TREATMENT OF GOITRE

by

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Introduction

Goitre is our national problem. The various workers in this line, have concluded that food and water lack the adequate amount of iodine. This deficient iodine intake is certainly the main reason for the high incidence of goitre, which is prevalent in endemic form all over the country. The deficient iodine intake reduces the production of thyroxine. The lowered thyroxine level stimulates the production of Thyroid Stimulating Hormone of Anterior Pituitary, which in turn leads to multiplication of thyroid acini. In the early stage of goitre formation the thyroid gland is uniformly enlarged, the epithelium lining the acini undergoes hyperplasia. In the next stage, the gland is asymmetrically enlarged, lobulated and the acini becomes filled up with the colloid. Still later, the thyroid becomes nodular, which represents foci of nonfunctioning thyroid. Hence the nodule is the result of differential hyperplasia and involution.

Besides iodine deficiency, insanitary living conditions, faulty food (like protein and vitamin A deficiency, cabbage), and certain chemicals (like calcium, cyanide, silica) are said to work as goitrogenic agents. Cyanides depresses tissue oxidation, hence demands more thyroxine and iodine to meet with the requirement.

Method and Material

174 patients with goitres were admitted in Bir Hospital during the last three years and 9 months (2024, 2025, 2026, Poush 2027). On the average four cases of goitre came to our out patient department every day for consultation. Most of these cases were suffering from parenchymatous goitre and were advised to take iodine.

This paper deals with the patients with goitre admitted in Bir Hospital for the surgical treatment. We want to be very clear at the beginning that for the diagnosis of the case, we depend mostly on our clinical findings. Our laboratory and radiological

investigations only helped us in accessing the possibility of surgery. Only the specimen removed from patients, suspected to be suffering from neoplasm were sent for histological examination.

Most of the cases of goitre which were operated upon were suffering from multinodular goitre, colloid goitre, solitary adenoma and carcinoma. It is most interesting to note that during the last ten years I (A.K.S.) have hardly seen a dozen case of toxic goitre and have not operated upon a single case of toxic goitre till today. I am quite frank to admit that we might have missed few cases due to lack of facilities for specialised investigations (like estimation of Protein bound iodine (3.5-7.5 mgn/100 ml), Radioactive isotope studies and Basal metabolic rate studies).

Sex Incidence

Out of 174 cases, 102 were female (59%) and 71 were male (41%). The female have always predominated over male in the development of goitre. This is due to the fact that the demand for iodine is more in female during puberty, pregnancy and lactation.

Age Incidence

The age of the patients were grouped according to D.H.S. Specification.

0 - 4 years = 2 cases
 5 - 14 years = 8 cases
 15-24 years = 74 cases
 25-34 years = 43 cases
 35-44 years = 33 cases
 45 years and above = 14 cases

About 86% of the cases have reported between 15 to 44 years of age. There was one new born baby with goitre. The mother was suffering from myxoedema. Both the mother and the child were given thyroid extract. The commonest age group coming to the hospital is between 15 years to 24 years. The oldest patient was aged 74 years; who was suffering from small nodule since last 60 years. This nodule was increasing in size recently and she had developed hoarseness of voice. Histological examination of the specimen confirmed it to be malignant thyroid.

Locality

Out of 174 cases, 124 cases came from the valley and the rest 50 cases came from outside the valley. The only reason for more cases coming from the valley is that the people here are more medical and cosmetic minded and hence seek early medical aid. A labourer in Tarai will not bother about the swelling in the neck because most of his friends will also have it, it is painless and is not interfering with his activities.

The mode of presentation

Almost all these came for cosmetic reasons; they wanted to improve their look. They had two or more nodules in their thyroid gland. Rarely, they will have solitary nodule, which has been increasing in size recently. Some will come for diffuse swelling occupying the neck (case of colloid goitre). 21 cases were admitted for pressure symptoms (like dyspnoea, dysphagia and mild thyrotoxicosis). They were controlled on medical regime and did not need surgical intervention. There were three cases of hypothyroidism. These were advised to take thyroid extract throughout their whole life.

A Cosmetic + + + 139 = 79.8%

B Pressure symptoms
+ 21 = 12.4%

(a) Dyspnoea 12

(b) Dysphagia 9

(c) Hoarsness of
voice 3

C Toxic goitre + 11 = 6%

D Hypothyroid + 3 = 1.8%

All the cases were subjected for routine blood examination for Hb, bleeding and coagulation time and serum cholesterol level. The average Hb content ranged from 9 Gm to 12 Gm%. The serum cholesterol level was high in cases of hypothyroidism (normal 150-250 mg/100 cc of serum). Routine examination of urine will exclude the possibility of diabetes. Routine X-ray of chest and neck was done to exclude the pressure or erosion over trachea. Out of 27 specimen sent for histological examination, 7 cases were found to be suffering from neoplasm (Personal communication from Dr. V.R. Prasai).

Surgical procedure

The thyroid gland was mobilised by dividing the superior thyroid artery, middle and inferior thyroid veins and ligating the inferior thyroid artery in continuity.

The isthmus of the gland was divided, and the anterior part of the gland bearing the nodules was removed. Any additional nodule was also enucleated.

The normal sized thyroid tissue (25-30 gm) with parathyroids were left. The haemostasis was completed and no attempt was made to oversew the cut surface, which was allowed to secrete freely into the wound. Wound was closed in layers with drains. As a rule, our anaesthetist examined the vocal cords at the end of surgery.

Drainage tubes were removed after 24 hours. Alternate stitches were removed after 48 hours and the rest were removed on the 5th day. Routine postoperative physiotherapy has been the key for early recovery.

Post operative complications

Two postoperative deaths were due to respiratory obstruction. They were normal at the time of leaving the O.T. In the ward they developed severe respiratory stridor and expired before tracheostomy could be done.

In one case, the malignant thyroid was fixed to the trachea. Nothing could be done except biopsy and low tracheostomy.

Tetany was noted in six cases on the second post operative day. Calcium chloride had to be injected at 8 hourly interval to two to three days. Two cases needed calcium salt by oral route for nearly two months.

Hoarseness of voice was temporary in 12 cases, which disappeared in 3 to 6 months time. In three cases it persisted beyond 6 months. These were the cases where hoarseness was present from the beginning. About 12.7% of cases developed wound sepsis demanding their stay in the hospital. In one case drainage tube got indrawn and the sepsis could be controlled only after its removal. Sometimes, pieces of catgut were removed through the sinus, before it finally closed. Recurrence of nodule and myxoedema after operation is unknown to us.

Total number of cases operated 126

Post operative deaths (established cases of carcinoma)	3	2.3%
Tetany	6	4.6%
Hoarseness of voice		
Temporary	12	9.2%
Permanent	3	2.3%
Wound sepsis	15	12.7%
Recurrence	0	0%
Myxoedema	0	0%

Discussion

The number of cases of goitre coming to Bir Hospital (in the capital of Nepal) signifies that goitre is a national medical problem. Dr. V. Ramlingaswami, Dr. M. Deo and Dr. M.G. Karmakar in their report on the survey of goitre in Nepal (19th Feb 1970) concluded that endemic goitre is due to iodine deficiency in diet. The paper presented by Dr. Worth and Dr. N.K. Shah (18th Oct. 1967) during the seminar on endemic goitre concluded that the endemic goitre is prevalent all over the country. Dr. Worth and Dr. Shah also reported on soil survey and concluded that the soil lacks in iodine content. They have suggested that soil contains excess of calcium and silica, which may work as goitrogenic agents. The nodular goitre is the result of differential hyperplasia and involution of the thyroid gland in endemic area. Only cases with huge colloid goitres causing gross disfigurements, pressure over the trachea and oesophagus are advised to undergo surgery. The cases with nodular goitres are always advised to undergo surgery, because it is impossible to cure them with medicine. Bleeding inside one of the cyst can be quite dangerous and many demand immediate tracheostomy. One of our patients with nodular goitre came for the treatment of auricular fibrillation (due to secondary toxic goitre). The fibrillation was controlled but the patient did not consent for surgery. Nodular goitre specially the solitary nodule are known to undergo malignant change. Out of 26 specimen sent for biopsy, 7 showed the evidence of malignancy.

During operation it is always desirable to examine the whole gland to exclude the possibility of any visible nodule being left behind. In cases of solitary adenoma, it is always desirable to remove surrounding normal thyroid tissue along with adenoma. In case of carcinoma of the thyroid gland situated in one of the lobe, we will prefer to do hemithyroidectomy. It is surprising that in endemic goitrous area like Nepal, we didn't come across cases with primary or secondary toxic goitre. Ian Aird quotes that primary

toxic goitre is more common in goitrous area of England, Switzerland and America. Psychic trauma and emotional strains are the potent precipitating cause for toxic goitre. May be that our people are not worrying type and hence are not disturbed by minor emotional strains. Of course, this subject is open for further confirmation. The surgical treatment for nodular goitre is quite safe and some of the complications enumerated above can be avoided. Most of the cases recover completely in a weeks' time. Because we mobilize the whole thyroid gland, remove all the nodules and leave sufficient thyroid tissue behind, we did not come across with recurrence of nodular goitre or myxoedema.

Conclusion

It is surprising to note that the cases of thyrotoxicosis is very rare in a country where goitre is endemic. His Majesty's Govt. has asked the salt trading corporation of Nepal to supply iodised salt throughout the country (daily iodine requirement in 150 mg.) With the supply of iodised salt, improvement in the sanitary condition, the incidence of goitre will definitely come down.

Summary

Goitre is endemic in Nepal. Patients with nodular goitre are advised to undergo surgery because medical treatment is useless for them. Various methods to prevent complication have been enumerated. The cases of toxic goitre are rare in Nepal. With the supply of iodised salt, endemicity of goitre can be controlled.

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