

CARCINOMA OF THE THYROID GLAND:

THE ZIMBABWEAN EXPERIENCE

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**A dissertation submitted in partial fulfilment of
the requirements for the degree of
Master of Medicine (Surgery)**

Department of Surgery

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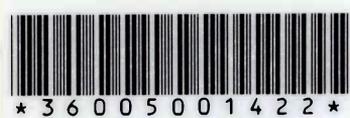
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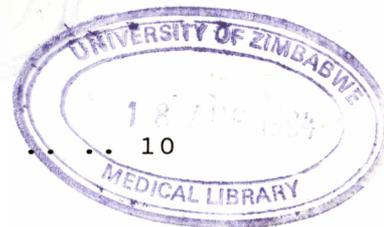
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Abstract

A retrospective study was done on 82 patients with proven cancer of the thyroid gland. Follicular carcinoma was the commonest (74%), followed by anaplastic carcinoma (12%) and papillary carcinoma (10%). The female to male ratio was 3.1:1. The majority of the patients for all types of thyroid cancer were above the age of forty.

The common surgical treatment was near total thyroidectomy (40.2%), followed by total thyroidectomy (18.2%). Radiotherapy alone was performed in 23.1 per cent of cases. The complication rate was 7.3 per cent. Total thyroidectomy is suggested as the appropriate surgical treatment.

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CARCINOMA OF THE THYROID GLAND: THE ZIMBABWEAN EXPERIENCE

Introduction

Carcinoma of the thyroid gland worldwide is uncommon. Its incidence varies from country to country. In Africa cancer registries record incidence rates ranging between 1 and 2 per cent and in Britain the figure is 1 per cent(1). Others take the view that the incidence is so low and its behaviour so "benign" that the disease is of little significance. On the other hand some believe thyroid cancer is of serious importance and that its treatment should always be radical(2). The aim of this study is to look at carcinoma of the thyroid in Zimbabwe and compare the local experience with what is seen elsewhere. The study will be carried out under the following headings:-

1. Age and sex at presentation
2. Clinical picture with prevailing symptoms
3. Histopathology
4. Possible aetiology factors
5. Treatment modalities

Literature Review

The incidence of thyroid cancer in the population at large is low and difficult to determine accurately. In the Western world the incidence is high in surgical series. Autopsy series tend to have a higher incidence in endemic goitre regions(3). The age adjusted incidence rates for cancer of the thyroid

in five continents were published by Segi and Kurihara (1966)(4). In Connecticut, USA the incidence was reported to be 1,2 and 3,1 per 100,000 per year for males and females respectively. In Birmingham, England it was 0,5 and 1,2 per 100,000 per year for males and females respectively. New Zealand had a rate of 0,9 and 1,7 per 100,000 per year for males and females respectively. In Nigeria, Africa, the incidence was 0,8 and 3,5 per 100,000 per year for males and females respectively. In Uganda it was reported to be 0,1 and 2,6 per 100,000 per year for males and females respectively. In the Southern part of Africa i.e Mozambique it was reported to be 1,8 and 2,3 per 100,000 per year for males and females respectively. In South Africa it was 0,1 and 1,7 (Bantu) per 100,000 per year for males and females respectively. Todd et al reported(1990) that the incidence of all types of thyroid cancer in the population was 0.38 per 100,000 per year in Zimbabwe(5). The female to male ratio was 3:1.

A study by Desai et al (1992) in Zambia showed that cancer of the thyroid was not among the top 20 commonest cancers in that country (6). Summary data from the Zimbabwe National Cancer Registry for the period 1986 to 1989 show that for all sexes, thyroid cancer does not appear in the 10 most common cancers (7). In the end of year report for 1987, the Zimbabwe National Cancer Registry ranked thyroid cancer the 40th commonest cancer for both sexes (8). The incidences of 0.9 and 1.4 percent for males and females respectively of all malignancies were reported for that year.

Very few countries are free of simple goitre. It is independent of climate, race, ethnicity and socioeconomic class(9). Most of Africa has a high prevalence of endemic goitre(1). In Zimbabwe results of surveys from Nyanga, Chirumanzi, Gokwe and Goromonzi districts report goitre rates of between 20 and 50 per cent(10). School surveys carried out 18 years apart in Wedza district of Mashonaland East Province showed no significant change of goitre prevalence in that period(10). The overall goitre prevalence was 73 per cent.

Another study in that district including Chiweshe communal lands showed visible goitre rates of 10 to 17 per cent. The population sampled had urine iodine levels below 2 µg/dl (78 per cent in Wedza and 53 per cent in Chiweshe). This result is consistent with an iodine intake of less than 50 µg per day. The average daily iodine intake should be 100 to 150 µg per day for adequate thyroid hormone synthesis (11).

Dent et al studied a population in Murehwa district. They noted that hypothyroidism was rare even though they established that 75 per cent of the study population had goitre(12). A nearby stream and well had iodine level of 0.9 µg per litre and 1.13 µg per litre respectively. Hetzel (1989) pointed out that the iodine content of the soil can be derived from the local drinking water concentration(11). Levels below 2 µg per litre are seen in iodine deficient regions. It is remarkable that despite the high prevalence of goitre in certain districts of Zimbabwe the incidence of cretinism remains low. Local doctors are more concerned by the mechanical obstructive effects of the endemic goitre and its predisposition to malignancy rather than to hypothyroidism(13).

The debate on whether endemic goitre is a risk factor for thyroid cancer has raged on for some time with many disagreements on various aspects(3). Several workers have researched the possible link between thyroid cancer and iodine deficiency. While Correa et al (Columbia 1969) concluded that 'high endemicity for goitre is not a "sine qua non" condition for high thyroid cancer rates',(4) Nmadu and al (Nigeria 1991) argue for a change in strategy for the management of endemic goitre(14). In their series of 245 patients who were operated on for cosmesis (20) per cent had unsuspected malignancy! They concluded that this condition should be regarded as premalignant. Decker(1974) in South Africa found 8,9 per cent of his series in Bantu patients to have thyroid cancer(15). This tallied with the findings of Grave and Mills (Zimbabwe 1980) who found 8,8 per cent of all thyroid diseases to be cancer in a nine year study carried out at Mpilo Central Hospital(16). Todd et al (1990) examined this relationship in Zimbabwe and concluded that no correlation existed between all types of thyroid cancer and goitre prevalence and that endemic goitre does not present a risk factor for thyroid cancer(5).

The geographic distribution of thyroid cancer was looked at by Cuello et al (1969) (17). Cancer of the thyroid in the state of Connecticut (USA) was compared to Cali in Colombia. Connecticut is a non-endemic goitre area and Columbia is an endemic goitre area. There was a significant preponderance of follicular carcinoma in Columbia. Also a high incidence of anaplastic carcinoma was reported. The two localities had no significant differences in the incidence of papillary carcinoma. Nodular goitre was more often associated with follicular and anaplastic carcinoma than with papillary carcinoma. Papillary carcinoma

is reported as the most common type of thyroid cancer in the USA(18). It accounts for half of the thyroid cancers in adults and three quarters of those in children. Hence papillary carcinoma is common in non endemic regions. Nkanza(1990) reported that the commonest histological type of tumour in Zimbabwe was follicular carcinoma (70%). Papillary and anaplastic carcinoma were equal (14% each) and only two cases of medullary carcinoma were found(19).

Materials and Methods

Hospital charts for patients who were treated for cancer of the thyroid were reviewed. The period covered was from January 1987 to December 1991 for both Harare Central Hospital and Parirenyatwa Hospital. The patients were from the city of Harare and from provincial hospitals referred for specialist treatment. Cancer registry data were extracted for the same period for all types of thyroid cancer. Data collected from the charts included age, sex, clinical presentation, histological type of thyroid cancer and treatment. Charts with unconfirmed (histologically) cancer were discarded.

Results

The present study consists of 82 patients drawn from the medical charts of Harare and Parirenyatwa Hospitals for the period 1987 to 1991. The cancer registry data for the same period had 140 patients reported for the whole country.

Histology

In table 1 the neoplasms seen in the 2 hospitals were classified according to histological types.

Table 1 - Classification and incidence of carcinoma of the thyroid (Harare and Parirenyatwa Hospitals: 1987 - 1991)		
Type	CASES	
	No	%
Follicular	61	74
Papillary	8	10
Anaplastic	10	12
Other	3	4
Total	82	100

There were 61 patients (74%) with follicular carcinoma, 8 patients (10%) with papillary carcinoma and 10 patients (12%) with anaplastic carcinoma. The patients classified as 'other' (4%) had their histology recorded as adenocarcinoma without specifying whether it was papillary or follicular type.

Data extracted from the Cancer Registry is shown in Table 2.

Table 2 - Breakdown by histological type (Cancer Registry 1987 - 1991)		
<u>Type</u>	CASES	
	<u>No</u>	<u>%</u>
Follicular	50	35.7
Papillary	19	13.6
Anaplastic	12	8.6
Squamous	6	4.3
Adenocarcinoma	5	3.6
Carcinoma (not specified)	45	32.1
Medullary	1	0.7
Hemangioendothelioma	1	0.7
Lymphoma	1	0.7
Total	140	100

Follicular carcinoma was the predominant type with 50 patients (35.7%), 19 patients (13.6%) had papillary carcinoma, 12 patients (8.6%) had anaplastic carcinoma. Non specified adenocarcinoma was reported in 6 patients (4.3%). A total of 45 patients (32.1%) had the histology reported only as carcinoma. Grouped under 'others' were 3 patients (2.1%). These were reported as one malignant lymphoma, one hemangioendethelioma and one medullary carcinoma.

2. Age and sex distribution by histological type .

The average age of the study population was 49.3 years (range 12 to 86). There are 62 females with an average age of 51 years and 20 males with an average age of 44 years. Table 3 shows the age and distribution of cancer by histological type.

Table 3 - Age and distribution of carcinoma by histological type (Harare and Parirenyatwa 1987 - 1991)

Age (Yr)	Percentage of patients			
	Follicular	Papillary	Anaplastic	Other
0-10	0	0	0	0
11-20	4.9	25	10	0
21-30	13.1	0	0	0
31-40	11.4	25	0	0
41-50	24.6	12.5	20	66.7
51-60	29.5	25	30	0
61-70	11.4	12.5	10	0
71-80	4.9	0	20	0
81-90	0	0	10	33.3
Total	100	100	100	100

Patients who had follicular carcinoma in this study who were aged 40 years and above were 70.6 per cent. In this age group those who had anaplastic carcinoma were 90 per cent. Only half of the patients in this age group had papillary carcinoma. In the younger age group of 40 years and below, the patients who had follicular carcinoma made up 29.4 per cent. Those who had papillary carcinoma in this group were 50 per cent and only 10 per cent for patients who had anaplastic carcinoma.

The male to female ratios of the different histological types is shown in Table 4.

Table 4 - Sex ratios of different histological types of thyroid cancer (Harare and Parirenyatwa Hospitals 1987 - 1991)

<u>Type</u>	<u>Male</u>	<u>Female</u>
Follicular	1.0 (20)	2.1 (41)
Papillary	1.0 (3)	1.7 (5)
Anaplastic	1.0 (5)	1.0 (5)
Other	3.0 (3)	0 (0)

The overall female to male ratio was 3.1:1. Anaplastic carcinoma was seen to affect both sexes equally but follicular carcinoma affected females twice as much as males. The ratio for papillary carcinoma was 1:1.7 male to female.

Table 5 shows the age and distribution by histological type from the Zimbabwe Cancer Registry. Patients who had follicular carcinoma 40 years of age and below were 36 per cent where-as papillary carcinoma in the same category was 42.1 per cent and anaplastic carcinoma 16.7 per cent. The majority of patients with anaplastic carcinoma (83.3%) were 40 years of age and above.

Table 5 - Age and distribution by histological type
(National Cancer Registry 1987 - 1991)

Age (Yr)	Percentage of Patients				
	Follicular	Papillary	Anaplastic	Squamous	Medullary
0-10	0	0	0	0	0
11-20	4	10.5	0	0	0
21-30	12	21.1	0	0	0
31-40	20	10.5	16.7	0	0
41-50	12	15.8	8.3	16.6	100
51-60	26	15.8	25	16.6	0
61-70	12	10.5	25	50	0
71-80	4	0	8.3	0	0
81-90	0	0	8.3	0	0
91-100	10	15.8	8.3	16.6	0

The age and sex ratios of data from the Cancer Registry in Zimbabwe is shown in Table 6. Follicular carcinoma is four times more common in females than in males. Papillary carcinoma has a male to female ratio of 1.0:3.8 and anaplastic carcinoma is five times more common in females. The overall ratio of males to females from the registry data is 1:2.6.

Table 6 - Sex ratios of different histological types
of thyroid cancer (National Cancer Registry
1987 - 1991)

Type	Male	Female
Follicular	1.0 (9)	4.6 (41)
Papillary	1.0 (4)	3.8 (15)
Anaplastic	1.0 (2)	5.0 (10)

3. Clinical picture

Symptoms are presented in Table 7 for patients in this study from Harare and Parirenyatwa Hospitals.

Table 7 - Clinical symptoms in patients with thyroid cancer
(Harare and Parirenyatwa Hospitals 1987 - 1991)

<u>Clinical symptoms</u>	<u>Percentage of patients with symptoms</u>		
	<u>Follicular</u>	<u>Papillary</u>	<u>Anaplastic</u>
No symptoms	52	38	20
Neck pain	8	38	10
Recent goitre growth	25	38	0
Hoarseness	10	38	0
Dysphagia	23	75	20
Dyspnoea	30	50	20
Pain in spine	7	0	10
Enlarged lymph nodes in neck	50	0	0
Stridor	0	0	10

As noted most patients who had follicular carcinoma (52%) had no symptoms. Only 38 per cent of patients with papillary carcinoma and 20 per cent of these with anaplastic carcinoma had no significant symptoms at presentation.

4. Treatment

The treatment given to the population in the study of Harare and Parirenyatwa Hospitals is shown in Table 8. Most patients (40.2%) were treated with near total thyroidectomy. Radiotherapy alone (23.1%) ranked second and total thyroidectomy (18.2%) was third.

Table 8 - Treatment given to study population
(Harare and Parirenyatwa Hospitals 1987 - 1991)

Treatment	Total	Percentage of cases
Total thyroidectomy	15	18.2
Near total or Subtotal thyroidectomy	33	40.2
Partial thyroidectomy	1	1.2
Radiotherapy alone	19	23.1
Treatment not entered in charts	14	17

Discussion

The National Cancer Registry established in 1986 collects data from central referral hospitals by case identification. Registry clerks visit government histology laboratories, hospital wards and medical records. Passive data collection is carried out by special notification forms and regular reports of cancer from private practitioners and private laboratories. The system is not working as it should be. Registration is not complete enough to generate population rates (7). Despite this shortcoming the proportional distribution rates of cases does indeed reflect population incidence rates.

In two studies Levy et al (Zimbabwe 1986) examined the prevalence of untreated disease. They showed that 59.8 per cent of the population were sick people and 16.1 per cent of these required surgical intervention. Those with thyroid enlargement made 1.7 per cent. Traditional belief requires that spirits be placated first for formal medical treatment

to be successful. Hence patients with serious pathology present late at hospital. Some of these patients will be in the terminal stages of their disease. Unfortunately a definitive diagnosis is never made and autopsy is refused by relatives for various reasons.

The study reported 82 cases of thyroid cancer for a 5 year period at Harare and Parirenyatwa Hospitals. The National Cancer Registry reported 140 cases for the same period. An apparent increase in reported cases per year since 1988 is shown in Table 9.

Year	Number
1987	16
1988	6
1989	26
1990	34
1991	<u>58</u>
Total	140

While this could indeed be an actual increase in incidence, it is more likely a result of improved availability of information to the registry. It could be that more people are coming for treatment and more diagnostic workup is being done. These figures report a rather low frequency of this disease since they represent the figures for the whole country. The figure of 58 new cases for the year 1991 for an estimated population of 10 million is low compared to the American figure estimated at 25 new cases per 1 million people per year(2).

The 82 cases in the study population in which 61 cases of follicular carcinoma were observed are shown by histologic category in Table 1. Follicular carcinoma constituted 74 per cent of the patients in this study. Figures from the Zimbabwe Cancer Registry Table 2 show follicular carcinoma predominating at 35.7 per cent of all patients and papillary carcinoma with 13.6 per cent. Endemic goitre is significantly associated with follicular and anaplastic carcinoma. In practically every study done about endemic goitre follicular carcinoma comes out to be the predominant type(11). Anaplastic carcinoma comes next even in the younger generation who are on prophylactic iodine. Zimbabwe is a known endemic goitre area and the preponderance of follicular carcinoma should be expected.

William et al (1977) pointed out that papillary carcinoma is not associated with goitre(3). They assert that there is evidence to indicate papillary carcinoma is associated with excessive iodine supply to the population! The pattern of thyroid cancer in this study is similar to what is seen in other endemic goitre areas like Cali and Bogota' in Columbia. Follicular carcinoma in these areas constitute 57 per cent and 62 per cent of thyroid cancer respectively.

Epidemiology

The epidemiology of thyroid cancer is difficult to assess in an objective manner in developing nations. Further studies under standardized conditions need to be carried out to arrive

at useful conclusions. With the application of rigorous criteria, the prevailing contradictions regarding correlation of endemic goitre and thyroid cancer may be eliminated(3) and appropriate incidence rates may be realized.

Presentation

The presence of a large goitre does not alarm the majority of our people. When originally seen at hospital the goitre has been present for several years. Traditional healers are not aware of the cause of goitre but readily offer herbal remedies after scarification(10). The majority of our patients particularly those with follicular carcinoma do not have any significant symptoms except for the enlarged goitre. This is illustrated in Table 8.

Beahrs et al (1969) state that symptoms become more frequent with increase in undifferentiation of tumour(2). Adeloje (Nigeria 1987) reports that many of the cancer patients when first seen have inoperable growths. In the Western world many malignant tumours present as a firm solitary nodule(21). The frequency of carcinoma in these nodules is between 2 and 24 per cent with an average of 8 per cent(14). In Africa the risk for solitary nodule is reported to be 2.3 per cent while that for multinodular goitre is between 12 and 48 per cent.

Diagnosis

In Zimbabwe early carcinoma of the thyroid is found incidentally in patients diagnosed and referred for treatment as endemic goitre. Clinical examination alone usually fails to differentiate benign from malignant disease. Except for the rarer medullary carcinoma, serum tests are of no use in preoperative diagnosis. Thyroid function tests are performed to exclude thyrotoxicosis. An X-ray of the thoracic inlet is done to check the patency of the trachea and retrosternal extension of the goitre. A consult to an otolaryngologist is often sought to check if vocal cord paralysis is present or not. Some workers order a scintiscan of the thyroid to check for the presence of the 'cold' or 'warm' nodules. It usually is the cold nodule that raises suspicion of malignancy. Facility for ultrasound and cytology are available. Ultrasound for diagnosis of thyroid malignancy within our set up is also seldom used. The patient is often operated upon and the histology report would determine further management. The frozen section facility is available from the pathology department but is currently being used very little.

Watters et al (Hong Kong 1992) found fine needle aspiration biopsy (FNA) to be more sensitive and specific in diagnosing malignant disease of the thyroid than ultra sound(22). Nathan et al concur with this finding. They showed that FNA gave more useful diagnostic information than nodule size, radioisotopic scan or ultrasound studies(23). However interpretation of the cytology specimen requires specialized skill and experience on the part of the pathologist. The technique is weak in differentiating benign cellular follicular adenomas from carcinoma;

the latter can be detected only by the revelation of capsular or blood vessel invasion. On the other hand no features are pathognomonic for malignancy on ultrasound. A lesion can be suspected if it is hypoechoic, non haloed and having a cystic component of 50 percent or less(22). The two modalities are complimentary and should be used as such. If for instance FNA study is positive for malignancy, even if ultrasound is negative surgery is indicated.

Pathology

Many different classifications of thyroid cancer have been employed over the years, Of late pathologists simplified the classification by dividing thyroid carcinomas into four main types: papillary, follicular, medullary and anaplastic(24). The lymphomas and sarcomas are classified seperately. Data extracted from the Zimbabwe Cancer Registry had 17 patients with papillary carcinoma. Two of these patients had mixed papillary and follicular carcinoma. They were however regarded as papillary carcinoma according to Woolner et al(1961). Also seen was one case of lymphoma and one of hemangio-endothelioma. They were 6 patients with squamous cell carcinoma. It is said that primary squamous cell carcinoma of the thyroid comprises less than 1 per cent of all thyroid cancers(25). Data from the Zimbabwe Registry showed a much higher percentage (4.3%) in the local population. Hurthle cell carcinoma was not encountered. This is no longer classified as a separate entity but is considered as follicular carcinoma. In the series of Woolner et al (1961) 18 per cent of the follicular carcinomas was composed of Hurthle cells.

Metastasis to thyroid gland from other organs is commoner than previously assumed(26). The rate varies 1.9 to 26.4 per cent in different autopsy series. Pillay et al (South Africa 1977) reported 10 cases of metastatic disease to the thyroid with the sites of origin from the kidney, breast, bronchus and melanotic lesions.

The hospital study population and reported cases from the Zimbabwe National Cancer Registry show no patient with cancer of the thyroid to be below the age of 10 years. Davies et al (1977) reported follicular carcinoma in a 9.5 year old boy, occult papillary carcinoma in a 3.5 year old boy, papillary carcinoma in an 8 year old boy and mixed papillary and follicular carcinoma in a 14 year old girl(27). They concluded thyroid cancer should be considered in a child with persistent cervical lymphadenopathy. Surgical specimens removed from children with thyroglossal duct remnants should be carefully looked at histology. In every child with a nodular thyroid enlargement, carcinoma should be excluded.

Treatment

Considerable controversy has been generated over the years concerning the appropriate surgical treatment in thyroid cancer. Recommended procedures vary from excisional biopsy to total thyroidectomy. Clark (1982) in the United States advocated near total thyroidectomy(28). He argues that lesser procedures increase the rate of recurrences and decrease the chance of long term survival for the patient. Attie (USA 1986) favours total thyroidectomy if carcinoma is confirmed by frozen section.

in a nodular goitre or lymph node (29). Block(1976) considers lobectomy for a suspicious nodule or carcinoma involving one lobe(30). It is pertinent to note that the extent of surgery should consider the pathology of the tumour, the distribution of the malignancy and the health status of the patient.

McClintock (USA 1977) reported a high recurrence rate for bilateral subtotal lobectomy (19%) and lobectomy (13%) (30). Where a lobectomy was performed on the primary side and subtotal lobectomy on the contralateral side the recurrence rate was low (6%). Hirabayashi and Lindsay (1986) reported a recurrence rate of 29 per cent for subtotal thyroidectomy and 2 per cent for total thyroidectomy(29). Over a ten year period Harris (Washington 1991) performed 95 thyroid and 19 parathyroid operations. His preferred procedure was total thyroidectomy and he had nerve injury rate of 1 per cent and hypothyroidism rate of 0 per cent for 114 operations(31). Clark et al (1988) suggested that total thyroidectomy should be the treatment of choice for patients with papillary and follicular carcinoma if it could be done without complications(32). They reviewed 160 consecutive patients who had total thyroidectomy and found only one patient who had a permanent complication i.e hypoparathyroidism that could have been avoided by a lesser procedure.

There are no prospective studies concerning the treatment of thyroid cancer hence considerable disagreement about the 'best' or most appropriate form of surgical treatment of patients with papillary or follicular thyroid cancer will continue(32). There are several advantages to performing total thyroidectomy.

Thyroid cancer is frequently multicentric and the gland is bilaterally involved in 30 per cent to 85 per cent of patients. In over 80 per cent of patients with papillary carcinoma there is microscopic cancer in the contralateral lobe. Recurrent cancer in the contralateral lobe of the thyroid gland is seen in 4.7 per cent to 24 per cent of patients. There can only be adequate resection with total thyroidectomy when adjacent structures such as the trachea, esophagus and recurrent laryngeal nerves are not invaded(32). It is essential in the treatment of thyroid carcinoma to remove the paratracheal nodes. This can be done with total resection. The recurrence rate is lower and cure rates higher after total thyroidectomy. Attie (1986) reported less than 1 per cent uptake in the thyroid bed when radiiodine studies were performed 4 weeks following total thyroidectomy in over 90 per cent of cases. In his series he does not routinely administer radioiodine after total thyroidectomy. Evidence is there that there is an increase in the use of total thyroidectomy in preference to other lesser procedures(32).

The management of thyroid cancer in Zimbabwe in this study is shown in Table 8. Near total thyroidectomy was the commonly used (40.2%) surgical procedure. Total thyroidectomy was the second common (18.2%) surgical management. When surgery is indicated, the Zimbabwe Oncology Committee (1992) recommends near total thyroidectomy for papillary and follicular carcinoma(33). Radioiodine ablation is also recommended for most of these patients as well as adequate hormone treatment for thyroid suppression.

When the cancer is medullary carcinoma, the Zimbabwe Oncology Committee recommends total thyroidectomy and a functional cervical lymph node dissection. Donnell et al (1987) recommended total thyroidectomy when tumour is confined to the thyroid gland(34). If the lymph nodes are involved, they suggest lymph node neck dissection. They note that I131 therapy and radiotherapy are ineffective and that optimal chemotherapy has not yet been established in medullary carcinoma of the thyroid.

Treatment of anaplastic carcinoma is often not feasible. The Zimbabwe Oncology Committee recommends total thyroidectomy. Where this is not possible they suggest tracheal decompression and maximum debulking of tumour. Keith et al in Texas(1978) suggest a combination of surgery, radiotherapy and chemotherapy(35). The results are still poor. The mean survival period is 6.2 months and five year survival is 7.1 per cent.

Complications of Treatment

The incidence of complications has been reduced considerably with improvement in surgical technique. The common serious complications are hypoparathyroidism and recurrent laryngeal nerve injury. Unilateral laryngeal nerve injury can be tolerated and the voice may improve with time. When both nerves are injured bilateral abductor paralysis can occur and arytenoidectomy may be required to keep a patent airway. Though not serious, the superior laryngeal nerve can be injured with devastating results to a professional singer. Rarely the cervical sympathetic chain is injured resulting in Horner's syndrome.

In a series of 448 cases Attie in New York (1986) had no accidental recurrent laryngeal nerve injury after total thyroidectomy. He deliberately sacrificed tumor involved recurrent laryngeal nerves in 3 per cent of his patients (29).

Post operative hemorrhage was a common complication of thyroid surgery in the early years. Modern technique of thyroidectomy requires that the main blood vessels are carefully ligated individually and hemorrhage is a rare complication. The complication rate according to the records in this study was low (7.3%). Only 2 patients had recurrent laryngeal nerve injury (2.4%) and one (1.2%) had hypoparathyroidism which resulted in her death. A further 2 patients had tracheomalacia (2.4%) and one had pneumothorax (1.2%).

Patients in the study population who were treated with radiotherapy alone were quite significant (23.1%). Radiotherapy was second to near total thyroidectomy as a common treatment modality. An appropriate number of our patients present with inoperable tumours when little else but palliation can be offered. Tubiana et al in France (1975) found survival in this mode of treatment to be 17 per cent at five years and 8.5 per cent at 10 years. They reported that the results of external radiotherapy were similar to those of radioiodine at the five years and better at ten years (36).

There is no record in the present study of complications that resulted from radiotherapy. The complications of radioactive treatment can be life threatening such as aplastic anaemia

and leukaemia.

Prognosis

Prognosis in thyroid cancer is variable according to the type. Poor indicators are metastasis at diagnosis, age and sex, extrathyroidal invasion, nodal involvement, tumour size, grade, vascular invasion and presence of gross residual disease(37) Fransilla (Finland 1975) showed that survival rates for papillary carcinoma were significantly higher than those for follicular carcinoma and the latter significantly higher than those for anaplastic carcinoma(38) .Medullary carcinoma and papillary carcinoma had similar survival rates. Vascular invasion in papillary carcinoma correlated with low survival rates. Better survival rates were seen in the diffuse small cell type in anaplastic carcinoma and encapsulated type in follicular carcinoma. Severe compression symptoms correlated with low survival rates. Young female patients had higher survival rates than older male patients.

In our study population many poor prognostic factors emerge. The majority of our patients have follicular carcinoma (74%). The older patient; those who were 40 years of age and above in this group were 70.3 per cent. Ninety per cent of patients with anaplastic carcinoma were above 40 years of age. In papillary carcinoma 50 per cent of patients are below 40 years of age. These statistics are basically the same as those reported from the Zimbabwe National Cancer Registry.

This hospital study has no recorded case of medullary carcinoma. However, the Zimbabwe National Cancer Registry reported one

such case. Nkanza in Zimbabwe reported two cases of medullary carcinoma over a three year period in a series of 86 patients(19). This type of thyroid cancer is rare in Zimbabwe. The incidence is reported as 0.7 per cent from the Zimbabwe National Cancer Registry and 2.3 per cent from Nkanza's series. One of the patients seen by Nkanza (Zimbabwe) was a twelve year old girl. Even though records were lacking he felt that this was most likely the familial type(19). Better survivorship is seen in younger patients in this type of thyroid cancer. Chong et al (Mayo Clinic 1975) noted a high recurrence rate independent of the type of surgical procedure(39). Those treated with partial or complete thyroidectomy, 24 per cent had recurrence of disease. Where modified radical neck dissection was added to the thyroidectomy in their series 62 per cent developed recurrences. The best chance of cure lies in early diagnosis of family members at risk by measuring immunoreactive calcitonin followed by aggressive excision of the primary tumour together with cervical metastases.

Conclusion

Limitations peculiar to our situation were encountered. A retrospective study relies heavily on information obtained from the medical charts. The surgical note taking is not up to the standard expected. The histology reports are often missing in the charts. Harare Hospital patients sometimes carry their histology reports on their person. Review is on out patients cards and often the diagnosis is entered as carcinoma of the thyroid without specifying histology type. The Parirenyatwa Hospital charts may contain only the front sheet particularly in private patients. The actual findings

would be at the practitioners practice (private rooms).

Surgery even though indicated was refused in a number of cases. Patients who died before definitive diagnosis was made had no post mortem done in most cases because relatives refused to authorize autopsy.

It is mandatory that the surgical note taking of the resident doctor is followed by an entry by the consultant in charge of the patient. Operations notes should be written by the surgeon not delegated to a junior. To come out with realistic incidence rates of cancer of the thyroid in Zimbabwe further studies with strict criteria are warranted. The proposals suggested by Hetzel(11) would make it possible to obtain definitive information. It is suggested that patients suspected of having cancer of the thyroid should be noted in the area where they are seen. Further investigations could be requested at well equipped centres but the data of both centres including final histology should be correlated and evaluated. The incidence of thyroid cancer should be noted in all autopsies performed in the hospital for whatever reason and especially in patients who have goitre. The type of treatment should be recorded and classification of tumour type, stage, age and sex groups should accompany any statistical review. The success of such a program would rely on adequate staff and the ability to attract patients in the endemic goitre areas.

It is impractical to remove all the goitres in Zimbabwe. The patients at risk need to be identified and encouraged to come for treatment. Patients who notice a recent increase

in the size of their goitre or those who become dyspnoeic should be evaluated early for malignancy. While cancer of the thyroid is not common, patients do die of the disease. Yet thyroidectomy is readily available and is a safe procedure in terms of morbidity and mortality.

In this study, 8.5 per cent of patients who had thyroidectomy for cancer were seen with fulminant disease and only palliation could be offered. The curability of recurrences where a less than total thyroidectomy was performed is extremely poor(29). The common surgical procedure for cancer of thyroid in this study was near total thyroidectomy. The reluctance to perform total thyroidectomy is the fear of a high incidence of complications. As shown elsewhere proper technique particularly preserving the blood supply to the parathyroids and identifying the recurrent laryngeal nerve would lower the complication rate. It is the authors conclusion that total thyroidectomy should be the treatment of choice more so because most of our patients are lost to follow up until recurrences have occurred.

Papillary carcinoma is relatively indolent particularly when the patient is young. This resulted in the Mayo Clinic justifying conservative operations. Bienwalters(29) found lower survival rates in patients treated by limited thyroid operations.

The patients should have a total body ^{131}I scan six weeks after thyroidectomy. If metastases are found, they should be

treated by radioiodine ablation. The patients should be maintained thereafter on a supplementary dose of thyroxin for the rest of their life.

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