

Lung Cancer Cytology True and False

Nazar B. El_hassani FRCS, FACS

Prior to the establishment of the cancer registry center in Iraq in 1974, there was little available information on lung cancer in this country. With the majority of information being based on personal records and hospital data. The paucity of accurate data in the very few series reported from Iraq between 1950-1970 makes it very difficult to assess the true size of the problem. Data collected by the cancer registry center since then are the most representative source to reflect bronchial carcinoma's incidence & patterns in this country. There has been a continuous alarming increase in the incidence of both male and female cases over the years. Data produced by this center in 1996 and beyond shows that cancer of the lung gains the unenviable reputation of being the commonest malignant tumor in men and is rapidly approaching this position in women^(1,3). Therefore, bronchogenic carcinoma in Iraq should be considered as a high priority problem with the need for expanded facilities for early detection, diagnosis, treatment and control and this should underline the provision of screening program that induce radiographic cytologic or biochemical methods for high risk groups to detect early stages of lung cancer, and this is the most important step 'or reducing disease mortality'⁽⁴⁾. The diagnosis of lung cancer by cytologic methods is of historic interest because they were early manifestations of malignancy as diagnosed by examining exfoliated cells. Donne and Walsh noted that exfoliated respiratory cells including cancer cells occurred in sputum as early as 1845. The first major series in patients in which the examination of sputum led to a diagnosis of lung cancer was by Hamplen in 1919⁽⁵⁾ after several years of quiescence. Pulmonary cytology enjoyed a period of rapid development in the 1970s and 1980s. During this time, fine needle aspiration was validated as an alternative to open lung biopsy and technical advance in radiologic technique permitted the imaging of small lesions and guidance of fine needle as well as improvements in the design of bronchoscopes⁽⁷⁾.

Before commenting, it is useful to summarize the five major techniques to obtain cellular material for the diagnosis of lung cancer. The oldest and easiest method is sputum collection, which depends on the spontaneous exfoliation of cells. There are three bronchoscopic

techniques: bronchial washing, brushing and bronchoalveolar lavage (BAL). Finally fine needle aspiration (FNA) techniques are performed through the chest wall under radiographic guidance or transbronchoscopically. The success of cytology in establishing the diagnosis of carcinoma is linked to several factors that include experience of morphological features of the tumor, adequacy of the sample & the technical excellence of quality or specimen processing⁽⁶⁾. The overall results depend on the laboratory while negativity rates depend on the population served the patient selection and the care taken in obtaining satisfactory specimens.

Sputum smears remain an excellent tool for cytologic diagnosis, but to obtain sputum, it is necessary to obtain proper understanding and cooperation of the patient, and in capable hands it has been shown to be the test most likely to give a positive result which can be used on outpatient bases after instructing the patient how to produce suitable sputum at home. Bloody sputum gives a higher yield while specimens composed predominantly of necrotic material; blood or inflammatory cells are generally considered as qualitatively insufficient for cytological diagnosis. Since exfoliated cells in the sputum are degenerating or necrotic, a very high degree of diagnostic accuracy cannot be always expected. It is generally accepted that sputum cytology has obvious advantages over other methods in being quick, simple, devoid of trauma and is the test most likely to give a positive result.

Aspirations and washings obtained through the conventional bronchoscope yielded cytologic detection in most cases but is lower than that obtained by examination of a series of three or more sputum specimens while post-bronchoscopic sputum cytology should be encouraged in negative results.

Transthoracic fine needle aspiration has proved to be a quick and safe procedure that did not cause any major discomfort to the patient and which could be performed and repeated in an outpatient clinic, it allows a direct approach to discrete pulmonary lesions in which no other morphologic diagnostic procedure with high sensitivity could be performed. Fine needle aspirate. Particularly when guided by computed tomography and the highest sensitivity rate in most reported cases.

The question is how much can we

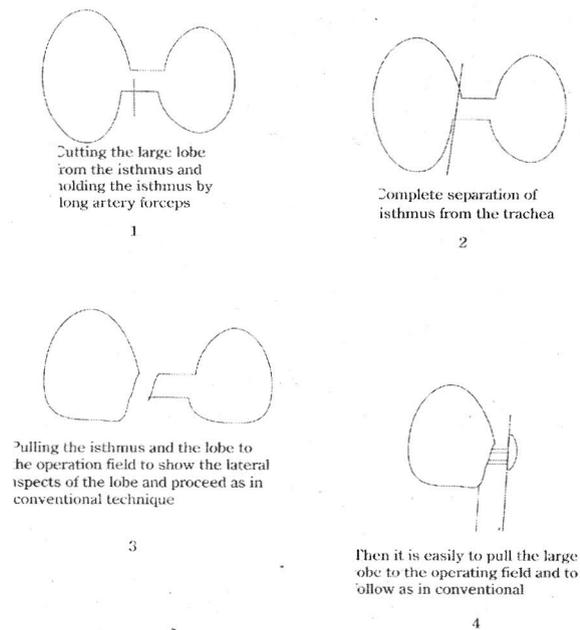


Fig.1 Some steps of isthmus first

Operative records were reviewed in details. The requested data were age, sex, type of technique and complications.

Chi-square, Yate's correction and student's t test were used to demonstrate the association of complications with type of technique.

Results:

Age distribution of patients is shown in table 1. The age range was 17 to 48 years (33.4 ± 9 years). A peak was noticed in the age group 30 to 40 years. A male to female ratio was 0.5:1.

Out of the total patients, 133 (46%) were underwent conventional thyroidectomy technique and 154 (53%) were underwent isthmus first technique.

Table 1 Age distribution of patients underwent thyroidectomy

Age group	No. (%)
< 20	9 (3.0)
20 – 30	72 (25.0)
30 – 40	172 (60.0)
> 40	34 (12.0)
Total	287 (100.0)

Histopathological diagnosis is shown in table 2. Simple multinodular goiter, toxic goiter, neoplastic goiter and Hashimoto's thyroiditis constitute 184 (64%), 60 (20.9%), 23 (8%) and 20 (7%), respectively.

Table 2 Histopathological diagnosis of patients with goiters underwent thyroidectomy

Histopathological diagnosis	Total	Conventional technique	Isthmus first
	No. (%)	No. (%)	No. (%)
Simple multinodular goiter	184 (64.1)	89 (66.9)	95 (61.7)
Toxic goiter	60 (20.9)	26 (19.5)	34 (22.1)
Hashimoto's thyroiditis	20 (7.0)	9 (6.8)	11 (7.1)
Neoplastic goiter	23 (8.0)	9 (6.8)	14 (9.1)
Total	287 (100.0)	133 (46.3)	154 (53.7)

Table 3 shows the types of surgical procedures carried out. The operating time for conventional technique was ranged 110 – 150 minute (130 ± 10 minute) and that for isthmus first was ranged 80 – 120 minute (100 ± 20 minute), which shows significant difference (p < 0.05).

The complications of both techniques are shown in tables 4. Significant reduction in postoperative bleeding, temporarily Hypoparathyroidism and external laryngeal nerve injury (p < 0.05) were noticed.

Table 3 Types of surgical procedures

Procedure	No. (%)
Subtotal thyroidectomy	235 (82.0)
Near total	29 (10.0)
Total thyroidectomy	23 (8.0)

Table 4 Postoperative complications among patients underwent the studied surgical technique

Postoperative complication	Conventional Procedure	Isthmus first Procedure	P value
	No. (%)	No. (%)	
Bleeding	8 (6.01)	2 (1.3)	< 0.05
Recurrent laryngeal nerve palsy	0 (0.0)	0 (0.0)	
Hypoparathyroidism (temporarily)	2 (1.5)	1 (0.65)	< 0.05
Infection	5 (1.8)	4 (2.6)	NS
External laryngeal nerve injury	9 (6.8)	6 (3.9)	< 0.05

Discussion:

This study revealed that the mean age of patients underwent thyroidectomy was 33.4 ± 9 years. It is lower than that reported in developed countries^{3,4}. This difference may be due to the fact that prolonged life expectancy in developed world.

The male to female ratio was 0.5:1. High proportion of females were reported in developed countries^{3,4}. Thyroidectomy may be carried out for cosmetics reasons in developed world.

Operating time was significantly lower in isthmus first technique than that of conventional thyroidectomy technique. This may be due to the fact that easily manipulation of both lobes and dissection after separation the isthmus at first. Reduction of the operating time leads to reduce the risk of anesthesia and postoperative complications and the cost. Recently, several workers^{5,6} stressed on reduction of operating time in surgery.

The incidence postoperative hypothyroidism was not recorded in this study. It was difficult to follow up patients for long period. Some workers reported an incidence of 44% and 46%^{7,8}. The former was randomized controlled study involving 50 patients with a mean of follow up of 3.6 years, whereas the later, though was not randomized study, was large series of patients.

The finding that the incidence of postoperative hypoparathyroidism among patients underwent isthmus first was lower than that among patients underwent conventional technique may reflect that the new technique (isthmus first) was accompanied with minimum surgical invasiveness. Thyroidectomy per se, however, induces Hypoparathyroidism as the parathyroid gland and its blood supply is engaged through bilateral paratracheal dissection^{7,8}.

Incidence of postoperative bleeding was significantly reduced among patients underwent isthmus first than that among patient underwent conventional technique. This finding may be due to the fact that minimum surgical invasiveness was carried out in new technique.

No recurrent laryngeal nerve palsy in both techniques. It is similar to that reported in Christian hospital, Hong Kong. Injury to recurrent laryngeal nerve is a well known risk during thyroidectomy. Most surgeons prefer dissection and identification of the nerve during surgery to prevent injury⁸. Isthmus first technique obviates damage to minimize potential risk of complication. Many workers tried to minimize potential risk of complication^{3,9-11}.

Isthmus first technique was applied in different thyroidectomy procedures and for different hisopathological entities similar to conventional thyroidectomy is applied in different procedures and for different histopathological entities.

Isthmus first technique was accompanied with reduced operating time and surgical invasiveness and easily handling of goiter which are an operative textbook requirements and efforts of new workers^{5,6}.

Further studies may elaborate the benefit of new technique, the isthmus first.

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