

Incidence of early complications in laparoscopic total thyroidectomy VS open thyroidectomy using breast approach in simple multinodular goiter.

Alaa Jamel Hasin^{1*}, kasim Traim², Muslim Kandel³

^{1,3} Surgical departments, College of medicine, University of Thi-Qal, Iraq.

² GIT center, Al Hussein Teaching Hospital, Thi-Qar, Iraq.

***Corresponding author**

Assist. Prof. Dr. Alaa Jamel Hasin

Email: alaajamel@yahoo.com

Abstract

Total thyroidectomy is a popular surgical operation around the world. It can be performed through collar incision which may end with a bad cosmetic appearance for this type of wound in the neck. Recently, laparoscopic total thyroidectomy has become popular in experience laparoscopic hand surgeons. There are many early complications that may occur after laparoscopic total thyroidectomy due to a new technique in total removal of the thyroid gland to give excellent cosmetic results. In our study, we compared the incidence of early complications, which occur within early 30 postoperative days, between LTT (laparoscopic total thyroidectomy) and OTT (open total thyroidectomy). 122 patients who had total thyroidectomy operation for simple multinodular goiter, 58 patients underwent LTT, while 64 patients OTT in GIT center in Thi-Qar city. All the operations were done by the same surgeon for all patients. The study was done through 2 years, from 1/5/2017 till 30/4/2019, through breast approach and collar incision. The surgical outcome has recorded the complications that occur to the patients within 30 days post-operatively.

Results: the main age of patients in LTT was 39.6 and in OTT was 48.2 ($p=0.04$). The operating time in LTT was 125.4+ 4 minutes, while in OTT was 92.6+2 ($p=0.03$). There were no significant differences in hospital stay in both groups. Patients with OTT experienced more pain than the LTT group postoperatively as evaluated by a visual analog scale. Cosmetically group LTT was very satisfied with this procedure according to the questionnaire we used. The follow-up period was 30 days only. The early complications were no significant differences between 2 groups as the LTT done by experience laparoscopic hands. 2 cases (3.5%) only converted to open procedure.

Conclusion: LTT procedure is a new technique used to give an excellent cosmetic result rather than used collar incision in the midline of the neck; there are no significant differences in all early complications that may occur in LTT and OTT. LTT must be applied by an experienced laparoscopic hand.

Keywords: early complications, laparoscopic, total thyroidectomy

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Introduction

The thyroid gland is one of the largest endocrine glands. Thyroid disorder may cause thyroid enlargement (goiter) and some of the enlargement need surgical removal of the gland ⁽¹⁾. Due to the popular increase of the minimally invasive surgery, the laparoscopic surgery for the neck, especially the thyroid gland, was increased as well. Endoscopic neck surgery was first done by Ganger in 1996⁽¹⁾ while the Huscher performed the first endoscopic thyroidectomy in 1997⁽²⁾. Thereafter, the procedure of LT and the approaches had been developed rapidly and become different such as axillary, breast, chest wall, submental^(4,5,6). Initially, the LT was done for benign thyroid conditions and contraindications for malignant thyroid diseases ⁽³⁾. However, endoscopic techniques present some difficulties in obtaining adequate surgical view because of the small working space and two-dimensional operative view ⁽⁷⁾. The goals of LTT are to limit external

scaring and improve the cosmoes, reduce post-operative pain, and to enhance post-operative recovery ⁽⁸⁾. The most common approaches used for this purpose are: axillary ⁽⁹⁾, via breast ⁽¹⁰⁾, lateral ⁽¹¹⁾, transoral⁽¹²⁾.

Material and methods

122 patients (58 with LTT and 64 patients with OTT) were selected over 2 years (1stof May 2017 till 1stof May 2019) through breast approach and collar incision respectively. All operations of LTT and OTT performed by a single surgeon assisted by two of the authors. Informed consent was obtained from all the patients preoperatively. The study was approved by the institutional review board of our hospital. Preoperative evaluation of all patients was done using ultrasonography, fine needle aspiration cytology to exclude malignancy conditions, thyroid functions test, chest x-ray, the direct laryngoscopic examination of the vocal cord. The main surgical outcome indicators were included the early complications that occur within 30 days postoperatively as bleeding, recurrent nerve palsy, superior laryngeal nerve palsy, seroma, hematoma, hypocalcemia, esophageal injury, conversion of LTT to open procedure, postoperative pain, operating time, duration and amount of drainage. The data were analyzed for statically significance by using the student's t-test and chi-square test. P-values <0.05 were statistically significant.

Results

The main age of the patients in group LTT was 39.6 +_ 6.4 while in OTT was 48.2+_ 8 years (p=0.004er) where the first group (LTT) was younger than the other group (OTT). The operative time was shorter in OTT (98+_42 minutes) while in LTT was (128+_31.6 minutes). There were no significant differences in postoperative hospital stay (3.25 +_ vs 3.21 +_ 1.23 days p<0.01), while the OTT was more painful. VAS 7; P=0.034 while in LTT VAS 1(P=0.054) (VAS 1 visual analog scale 1 day after the operation). The cosmoes of the LTT group were more satisfied than the other group according to the questioner. Other differences in postoperative complications were summarized in table 1.

TABLE 1: SHOW THE CHARACTERISE AND POST OPERATIVE COMPLICATIONS IN BOTH PROCEDURES OF TOTAL.

COMPLICATIONS	L.TT	O TT	P VALUE
AGE(YEARS)	39.6+_ 6	48.2+_ 8	0.003
OPERATIVE TIME	128+_ 31.6	98+_ 42	<0.01
HOSPITAL STAY	3.25 +_0.93 DAYS	3.21+_ 0.871DAY	0.447
DURATION OF DRAINAGE	3DAYS	1DAY	0.576
AMOUNT OF DRAINAGE	MODERATE	MILD	0.79
BLEEDING	2/58	1/64	0. 01
RLN INJURY	2/58	1/64	0.01
SUP.L N. INJURY	1/58	0/64	0.003
SEROMA	5/58	1/64	0.584
HYPOCALCEMIA	2/58	1/64	0.01
OESOPHAGEAL INJURY	1/58	0/64	0.003
CONVERSION TO OPEN	2/58	--	--
POST OPERATIVE PAIN	3/58	10/64	0.932

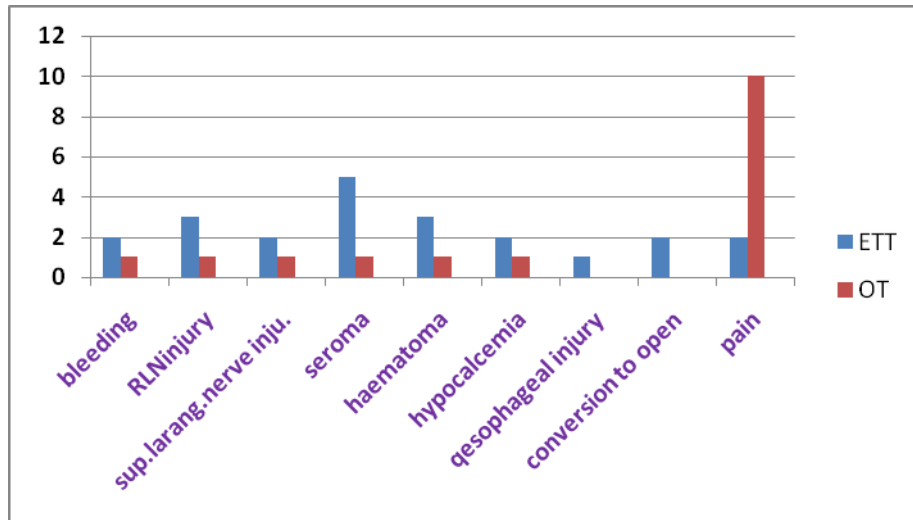


Figure 1: shows the differences of early complication between LTT and OTT; we see that the post-operative pain more with OTT, while the other complications no significant.

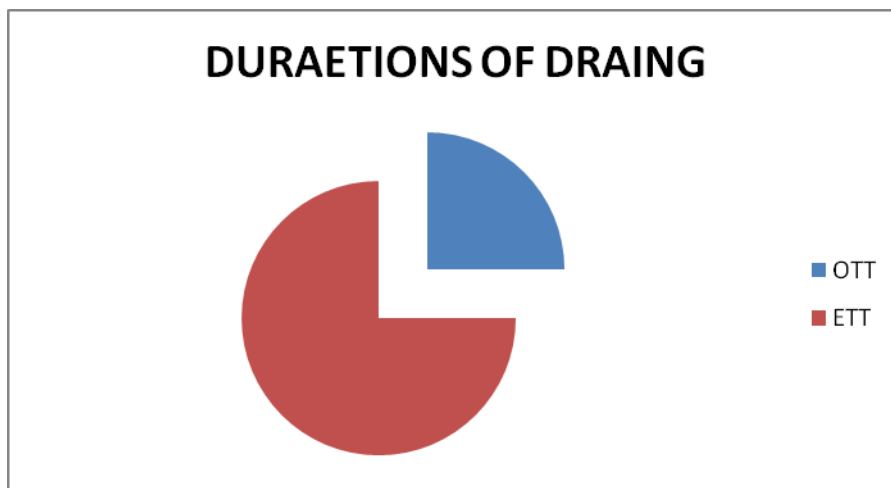


FIGURE.2 DURATION OF DRAINAGE IN OTT ONE DAY ONLY WHILE IN ETT IS 3 DAYS

The postoperative complications of both groups were checked through the first 30 postoperative days. Regarding the recurrent laryngeal nerve palsy 2 cases with LTT and one case with OTT, all of the patients return to normal voice and hoarseness disappears with the first 22 days followed by indirect laryngoscopy examination appear normal vocal cord. One case in LTT gets superior laryngeal nerve palsy which returns to normal high pitch voice after 28 days post-operatively. Seroma more occurs 5/58 patients occur with LTT vs 1/64 in OTT which all disappear gradually without intervention. One case on LTT gets an esophageal injury which also treated conservatively. The cosmetic result was evaluated by using a scoring system (1.extremely 2.fair 3. Normal 4. Not at all), other complications no significant differences finding between two groups.

Discussions

Laparoscopic total thyroidectomy (LTT) is a new technique in our country as a part of minimally invasive surgery. This procedure achieved through the breast approach in our center. It's carried out by a single corresponding surgeon help by the other 2 authors. It gives an excellent result as cosmoses with no significant differences in complications occur as compared with the traditional open technique. this type of surgery has been growing recently in the word due to the improvement of laparoscopic instruments and improve in surgeon experiences provide minimally invasive surgery even

to the thyroid tumors⁽¹³⁾, endoscopic neck surgery was attempted by ganger in 1996⁽²⁾. The first laparoscopic thyroidectomy was performed according to Huscher 1997⁽³⁾. There were various methods including axillary, breast, anterior chest approaches, have been introduced by many surgeons^(15, 16, 17). Most of the comparative studies had reported that there was no significant difference regarding to the technical safety between LTT and OTT, and that LTT have remarkable cosmetics results^(17, 18, 19, 20, 21, and 22). Many types of research emphasized on laparoscopic removal of the malignant thyroid gland as indications and contraindications (23). In our current study, we mentioned the laparoscopic thyroidectomy in symptomatic simple multinodular goiter including toxic goiter after return the patients medically to the thyroid state. The incidence of recurrent laryngeal nerve palsy after OTT was reported to be (0-6%), and the permanent nerve palsy less than 1% (25.26). In contrast, our results showed that the transient nerve palsy was 3.4% in LTT, while it was 1.7% only in OTT. The high percentage had decreased with time due to the increasing of hand experiences in a laparoscopic procedure. However, our results show that the hypocalcemia was 3.4 in LTT and in OTT was 1.7%, and that was transient, which returns to normal after 28 days. One case (1.7%) had got an esophageal injury, which occurs in the first case only, and treated conservatively. However, previous studies have not dealt with this kind of complication. Dhiman *et al.*, have reported the disadvantages of endoscopic thyroidectomy with thyroid diseases and thyroid cancer in 2008⁽¹⁷⁾. Our results have shown that the operating time for LTT was longer than OTT. However, this time was decrease gradually with the increasing of laparoscopic experiences. Seroma can be considered more common in LTT which can resolve spontaneously without intervention, while laparoscopic thyroidectomy was safe and effective for treating benign symptomatic goiter.

In conclusion, Laparoscopic total thyroidectomy using a breast approach is a safe minimally invasive surgery that gives outcomes similar to the open total thyroidectomy and gives perfect cosmetics results.

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Disclosure

The authors report no conflicts of interest in this study.

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