Early Outcomes of the Postauricular-Submental Approach Endoscopic Thyroidectomy

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Background: The postauricular-submental approach (PSA) endoscopic thyroidectomy is a recently developed technique. The advantages of this method include that (a) it avoids paresthesia around the nipple, chest wall, and chin; (b) the midline endoscopic view can provide better orientation of surgical landmarks; and, (c) the scars are hidden in the natural neck position.

Objective: To report early surgical outcomes and complications of PSA endoscopic thyroidectomy

Material and Method: Patients undergoing PSA endoscopic thyroidectomy were included in the study. The clinical diagnosis, operative technique, pathological results, surgical outcomes, and complications were documented.

Results: Five patients were included, ranging between 30 and 62 years of age. The patients had a clinical diagnosis of solitary, single non-toxic thyroid nodule. PSA type I was performed in 3 patients and PSA type II in 2. The diameter of the thyroid ranged between 3 and 6 cm. The mean operation time was 180 min. None of the cases needed to convert from endoscopy to open surgery. There were no major complications.

Conclusion: PSA endoscopic thyroidectomy is a feasible method permitting relatively good operative visualization and minimal adverse effects.

Keywords: Approach; endoscopic thyroidectomy; endoscope; thyroidectomy

Endoscopic thyroidectomy approaches were developed to deal with cosmetic concerns resulting from conventional thyroidectomy that usually leave a transcervical incision scar. There is currently no gold standard on the best endoscopic thyroidectomy approach.

The postauricular-submental approach (PSA) endoscopic thyroidectomy has been reported[1]. The advantages of this method are that (a) it avoids paresthesia around the nipple, chest wall, and chin; (b) the midline endoscopic view provides a better orientation for surgical landmarks; and, (c) the surgical scars are hidden in the natural neck position.

The objectives of the current study were to report early surgical outcomes and complications after the postauricular-submental approach endoscopic thyroidectomy.

Material and Method

Population

The population included patients undergoing the postauricular-submental approach endoscopic thyroidectomy between January 2016 and January 2017 who had given consent for data collection.

Patient selection

The eligibility criteria were patients with a benign thyroid mass <6 cm at its largest diameter.

Patient position and operating room setting

Each patient was placed in a supine position on the operating table with a pillow beneath the shoulders. The neck was extended to expose the operative field. The arms were placed naturally at the sides on the operating table. The patient was put under general anesthesia using nasal intubation. The surgeon stood at the head of the patient. The camera holder and the scrub nurse stood around the head and neck of the patient (Fig. 1).

Operative technique

The first mini-incision (10 mm) was made in the submental area between the chin and the hyoid bone. It is recommended that the incision be at least two finger breadths below the mental prominence to avoid damaging the submental nerve. A Veress needle was used to infiltrate the subplatysmal space with a
approached, followed by identification of the recurrent laryngeal nerve and parathyroid glands. The specimen was transferred to a plastic bag and pulled through the camera port. Meticulous hemostasis was attained and the midline repaired with endosutures. No drain was left in place. The skin was sutured cosmetically.

Data collection

The data were collected from outpatient and inpatient records, and our pre-defined case record form. The clinical diagnosis, operative technique, pathological results, surgical outcomes, and complications were documented for analysis.

Results

Five patients were included in the current study (4 females and 1 male). Age ranged between 30 and 62. The patients had all been clinically diagnosed as having solitary, single non-toxic thyroid nodule. PSA type I was performed in 3 patients and PSA type II in 2. The operative procedures were lobectomy and isthmectomy. The diameter of the thyroid ranged between 3 and 6 cm. The mean operation time was 180 min (range, 120 to 300) (Table 1).

The estimated blood loss was <50 ml in all cases. None of the cases needed to convert from endoscopy to open surgery. Indirect laryngoscopy was performed pre- and post-operatively in all cases. No vocal palsy was found. None of the patients experienced any numbness or facial palsy. The first patient was discharged on postoperative day 3, while the second and third patients were discharged on postoperative day 2, while the remaining patients were discharged on postoperative day 1. The cosmetic result was acceptable as the scars were hidden in the natural anatomic position (Fig. 3).

Discussion

Conventional thyroidectomy incision can sometimes result in a keloid or hypertrophic scar which is unacceptable for some patients, especially among young adolescents or females. Various approaches have been proposed for endoscopic thyroid surgery; however, controversy remains on which is the best endoscopic approach.

The mini midline cervical incision-called minimally invasive, video-assisted thyroidectomy (MIVAT)—was first used in Pisa (Italy) in 1998. The technique is characterized by a unique central access and external retraction. It gained in popularity in Europe and the surgical results and safety were
cosmetic outcomes of postauricular-submental approach. PSA type I – photo taken 4 weeks after operation. A) neutral position B) Semi-extended of neck position, oblique view. PSA type II – photo taken 2 weeks after operation. C) neutral position D) Semi-extended of neck position, oblique view. 0.5 cm incision to the left of the submandibular area.

Table 1. Summary of postauricular-submental approach thyroidectomy cases

<table>
<thead>
<tr>
<th>Case</th>
<th>Sex</th>
<th>Age</th>
<th>Pathology</th>
<th>Size (cm)</th>
<th>Operative procedure</th>
<th>PSA type</th>
<th>Operative time (min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Female</td>
<td>62</td>
<td>Follicular adenoma</td>
<td>5</td>
<td>Lobectomy</td>
<td>I</td>
<td>300</td>
</tr>
<tr>
<td>2</td>
<td>Female</td>
<td>30</td>
<td>Follicular adenoma</td>
<td>3</td>
<td>Lobectomy</td>
<td>I</td>
<td>180</td>
</tr>
<tr>
<td>3</td>
<td>Male</td>
<td>46</td>
<td>Thyroid cyst</td>
<td>6</td>
<td>Lobectomy</td>
<td>II</td>
<td>150</td>
</tr>
<tr>
<td>4</td>
<td>Female</td>
<td>35</td>
<td>Follicular adenoma</td>
<td>4</td>
<td>Isthmectomy</td>
<td>I</td>
<td>150</td>
</tr>
<tr>
<td>5</td>
<td>Female</td>
<td>42</td>
<td>Follicular adenoma</td>
<td>4</td>
<td>Lobectomy</td>
<td>II</td>
<td>120</td>
</tr>
</tbody>
</table>

The axillo-breast approach includes the axillo-bilateral breast approach (ABBA), the Bilateral axillo-breast approach (BABA), and the postauricular and axillary approach (PAA). The complication rates to these are similar to open thyroidectomy; however, some patients may still find scarring of the breast area unacceptable. The benefits are that there is no scarring in the neck area and that the camera is introduced through the axillary port; while the disadvantage is that the dissection starts from the axilla which is unfamiliar to most head and neck surgeons.

Trans-submental single-port endoscopic thyroidectomy (TSSPET) was studied in a porcine model. The major advantages are the avoidance of both extensive dissection in extracervical area and a noticeable scar in the natural neck position. There have not, however, been any human studies using this approach.

The retroauricular approach (RA) endoscopic thyroidectomy was recently proposed as preferable because the dissection area is smaller than that of the transaxillary approach (TA), and the surgical anatomy is familiar to head and neck surgeons. This method, however, requires that the head be rotated so that only the ipsilateral side can be dissected.

In the current study, we reported on 5 cases of PSA endoscopic thyroidectomy. There were no intraoperative conversions to open surgery. In our series, there were no completion or total thyroidectomies done. The mean operative time was 3 h. The postoperative stay depended on the experience of the surgeon. The last 2 cases were discharged 1 day after surgery. Although a thyroid lobectomy can be done as day surgery, endoscopic thyroidectomy usually requires more days to observe any complications; there was no evidence of recurrent laryngeal nerve injury in our series. The limitations of PSA endoscopic thyroidectomy are that: (a) the best results are for thyroid tumors <6 cm (i.e., it is not suitable for large tumors); (b) it is not appropriate for invasive malignant tumors; and, (c) it is contraindicated if there is a history of radiation or previous neck surgery.

The possible complications for PSA endoscopic thyroidectomy—just as with other...
Retroauricular approaches (RA and PAA) is unintentional involvement of the marginal mandibular branch of the facial nerve and great auricular nerve. This problem can be avoided by dissecting the plane from the midline to the postauricular area. The postauricular incision will be made only after saline with an adrenaline injection and subplatysmal tunneling. To date, there have been no reports of facial nerve palsy or great auricular nerve injury from the postauricular approaches\(^{(5,8)}\).

**Conclusion**

PSA endoscopic thyroidectomy is a feasible method that permits relatively good operative visualization and minimal adverse effects.

**What is already known on this topic?**

There is to date no consensus on the best approach for endoscopic thyroidectomy.

**What this study adds?**

The postauricular-submental approach (PSA) endoscopic thyroidectomy avoids paresthesia around the nipple, chest wall, and chin and it produces acceptable cosmetic results.

To date, there is no report on facial nerve palsy or great auricular nerve injury from the postauricular approach.

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**Potential conflicts of interest**

None.

**References**

ผลการคัดคื่อนพบโรคคนคลองล่างพบเทคนิคคิดแผนโค้งและหลังที่ระยะแรก

การวิเคราะห์

ขั้นตอนการ: การคัดคื่อนโรคคนคลองล่างพบเทคนิคคิดแผนโค้งและหลังที่ระยะแรกเป็นเทคนิคการคัดคื่อนแบบรอบด้านโดยการพิจารณาจากภาพคัดคื่อนตั้งต้นที่แสดงผลของภาพคัดคื่อนต่างๆ ในการพิจารณานี้ ทั้งในการวิเคราะห์ที่ระยะแรก การตรวจкратวัน แพทย์คัดคื่อนผ่าตัดภายหลังนั้นไม่สามารถจัดการต่อเนื่องจากกลองผ่าตัดสำหรับการและผลการคัดคื่อนของโรคในที่มุก

วัสดุและวิธีการ: ผู้ป่วยที่ได้รับการคัดคื่อนโรคคนคลองล่างพบเทคนิคคิดแผนโค้งและหลังที่ระยะแรกมีจำนวน 107 ราย โดยผู้ป่วยจะมีข้อผูกมัดในการผ่าตัด ร่วมกับแพทย์ผ่าตัด แพทย์ผ่าตัดและแพทย์แบบ หลักการคัดคื่อน

ผลการคัดคื่อน: ผู้ป่วยจะรับยา 5 วัน sonra จะรักษาตามความต้องการเจาะซ้ำ ผู้ป่วยมีอายุ 30 ถึง 62 ปี โดยการวิจัยจะใช้เป็นกลุ่มที่มีโรคคนคลองล่าง และการรักษาจะมีวิธีการ 1 วิธี 3 วิธีในภาพคัดคื่อนแบบ PSA type I และ 2 รายได้รับการคัดคื่อนแบบ PSA type II กลุ่มที่มีโรคคนคลองล่างอีก 3 ราย 6 ราย มีการรอบเชียร์ 180 นาที นานกว่า 180 นาที ให้ผู้ป่วยเจาะซ้ำเพื่อการคัดคื่อนช่วยในการรักษา

สรุป: การคัดคื่อนโรคคนคลองล่างพบเทคนิคคิดแผนโค้งและหลังที่ระยะแรกเป็นเทคนิคที่มีผลดี และที่ได้รับผลการคัดคื่อนและในอนาคต

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