The minimal cervical access in thyroid surgery: indications and limitations

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Aim. The aim of the study was outcome with minimal cervical access in thyroid surgery.

Methods. Since 1992 up to 2006, 1356 thyroidectomies were performed in our Unit. 1231 patients were treated with the classical Kocher's incision, whereas in 125 cases the minimal cervical access was used. The patients were ruled in based on the presence of benign thyroid disease, small (even relapsing) goiters. Tumours (including invasive malignant masses, large goiters, mediastinal and recurrent goiters) were ruled out, with the exception of small papillary tumours with clinical instrumental and intraoperative negative assessment for regional extension.

Results. In the patients operated with the "minimal cervical access" no complications were detected but temporary hypocalcemia in nine cases.

Conclusion. The results of this study confirm that the "minimal cervical access" can be used in selected patients and by expert surgeons. Its advantages are: better aesthetic results, less postoperative pain, more patient's comfort.

Key Words: Thyroid diseases- Minimal cervical access - Surgery.

In the age of videoassisted and mininvasive surgery, new techniques for all body's parts are suggested and adopted; these techniques use small incisions: the mini-laparotomy, the mini-herniotomy etc...

They give many advantages: less tissue's trauma, less postoperative pain, less period of hospitalization and better aesthetic results.

They are used in neck surgery especially, where the aesthetic result is more important.1-3

The classic incision for thyroidectomy is the Kocher's incision, called "tie-incision". That is coincided at the end of the 1800 to make possible the best exposure of the thyroid gland and adjacent structures.

This incision is made about 2 cm above the jugular limit and it is included between the lateral layers of sternocleidomastoid muscles, with hyper-stretched neck.

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Other cervical access (lateral, median, U-cervical incision) have been suggested and used besides the Kocher's cervical incision, still used, in the course of the years.

Miccoli introduced the minimally invasive approach in the neck's surgery history, for the parathyroidectomy at the end of the Nineties.4-6

Norman did the same in the United States. He described a minimally invasive technique for the neck's unilateral exploration during parathyroidectomy, using a 2.5 cm transversal incision.7

Therefore the minimal cervical incision was introduced for parathyroids surgery and was adapted to thyroid surgery just later.8,9

However lateral, bilateral, oblique minimal access exist in literature as well.

In thyroid surgery "minimal cervical incision" is called a cervical incision between 2.5 and 4.5 cm.

Particularly, a 2.5 cm incision is called "minithyroidectomy", whereas 3-4.5 cm incision "minimally invasive open thyroidectomy".10

The minimal cervical incision makes possible a neck's bilateral exploration and all four parathyroids identification, achieving an excellent thyroid exposure.11

The minimal cervical incision is suggested at present for: benign thyreopathies, small goiters, aesthetic exigency (young, female patients).

The glands size or particular pathologies are the only one restrictive element of the minimal cervical incision in literature.10

The Authors consider minimal cervical incision contra-indications absolutes and relatives.

The absolute contra-indications are: invasive malignant
tumors (anaplastic and medullary carcinomas), large cervical goiters, mediastinal goiters, large recurrent goiters.

The relative contra-indications are: thyroiditis, differentiated carcinomas, goiter’s hypervascularization (hyperthyroidism).

The advantages of minimal cervical incision are unanimously acknowledged: better aesthetic results, less postoperative pain, more patient comfort and, if necessary, enlargement possibility.

Materials and methods

We have observed 1237 benigns thyreopathies and 119 thyroid tumors at the “Endocrine General Surgery Department” of Messina’s University Policlinic Hospital, between 1992 and 2006 (Table I).

The greater part of patients were females (ratio F/M 2:1) and the mean age was 49.46 ± 16.42.

Between benigns thyreopathies we observed 615 multinodular euthyroid goiters (49%), 228 adenomatous goiters (18.9%), 107 toxic adenomas with multinodular goiter (8.6%), 86 thyroiditis (7%), 64 follicular adenomas (5.3%), 62 recurrent goiters (5.1%), in 20 hyperthyroid adenomas (1.7%), 19 Basedow diseases (1.6%), 10 Plummer diseases (1%) and 1 case of hyperthyroid adenoma with thyroiditis (1%) (Table II).

The operated malignants thyreopathies were: differentiated carcinomas (109 cases, 91.5%), medullary carcinomas (6 cases, 5%), anaplastic carcinomas (3 cases, 2.7%), lymphoma (1 case, 0.8%).

The differentiated carcinomas represented the 79% of all malignant thyreopathies.

They were: 55 papillary carcinomas (50%), 24 follicular carcinomas (22.2%), 16 papillary carcinomas, follicular variety, 14 ossifilous carcinomas (13%) (Tables III, IV).

We performed 1267 total thyroidectomies (93.5%), 61 radical removal of recurrent goiter before conservative thyroidectomies (4.4%), 24 total thyroidectomies with monolateral lymphnodes neck dissection (functional dissection) (1.7%) and finally, 5 total thyroidectomies with bilateral neck dissection (functional dissection) (1.4%) (Table V).

We performed 1231 kocher’s incisions and 125 minimal cervical incisions (performed since 2001) on the whole of 1356 operated patients (Table VI).

Therefore the minimal cervical incision represented the 25% of 1485 performed operations (Table VII).

Results

We observed no laryngeal nerve or haemorragic complications, but only transitory hypocalcemia in 9 of 125 minimal cervical access.

We suggest the minimal cervical incision for: benigns thyreopathies, small goiters, recurrences as well; while we never use this surgical access in malignant pathologies, except in...
makes more difficult the thyroidectomy; in our opinion the
tional cervical access, because the minimal cervical acces
14 'erative complications incidence, the hospitalization's length.
cervical access: the operation length, the intra and postop­
9 traindications: thyroiditis, hypervascolarizated goiters, dif­
large and recurrent cervical goiters, whereas relative con­
Authors.
cervical acces is the same as that of the greater part of
In fact, the operation’s length can’t be faster that tradi­
tional cervical access, because the minimal cervical acces makes more difficult the thyroidectomy; in our opinion the complication incidence is the same or greater, because the minimal cervical access allows no optimal sight of laryngeal nerves and parathyroids glands, the hospitalization’s length is the same that traditional cervical access, because it is subjected to calcium serum postoperative control in the following three days after the operation and to drain removal in the following 24/48 hours after. Sometimes we dissect the prethyroid muscles to gain space, improving the thyroid exposure.

Discussion and conclusions

Today it must “act for the patient’s weal with lower expense and in less time”, so the minimal cervical access is suggested for selected patients, by expert surgeons performed. In fact this access gives many advantages as : better aesthetic results, less postoperative pain, more patient’s comfort.

However in our opinion the minimal cervical access can’t be standardized within 2.5 and 4.5 cm settled limits, because today the surgical technique’s improvement and the surgeon’s experience allow the large goiters removal, immersed as well, through cervical incision a little wider than 4.5 cm.

Therefore the definition of minimal cervical access is relative and attributed to gland’s but not to the incision size.

Table VI.—Personal experience: kocher’s incisions and minimal cervical incisions (period 1992-2006).

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Kocher’s incisions</td>
<td>1231</td>
</tr>
<tr>
<td>Minimal cervical incisions (2001)</td>
<td>125</td>
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<td>Total</td>
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Table VII.—Personal experience: minimal cervical incisions in the last five years.

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<tr>
<td>Kocher’s incisions</td>
<td>360</td>
<td>75</td>
</tr>
<tr>
<td>Minimal cervical incisions</td>
<td>125</td>
<td>25</td>
</tr>
<tr>
<td>Total</td>
<td>485</td>
<td>100</td>
</tr>
</tbody>
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References

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