THE TENDENCY TO INCREASE OF EXTENSIVE THYROIDECTOMIES – MANY YEARS’ EXPERIENCE OF ENDOCRINOLOGICAL SURGERY DEPARTMENT

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The aim of the study was to evaluate the extent of thyreoidectomy in given years from 1993 to 2006 with the estimation of the occurrence of different types of neoplasmatic lesions in thyroid gland.

Material and methods. The study included 3477 patients that underwent thyreoidectomy for nodular disease in above-mentioned period. The data were analyzed in reference to the extent of resection and the type of thyroid nodule.

Results. Subtotal resections predominated and constituted 64.82% of all performed thyreoidectomies. The study showed a gradual increase in the number of total resections, from 14.86% in 1993-1996 to 27.33% in 2004-2006. The majority of removed glands revealed defects of almost total nodular degeneration. There was a significant increase in the number of papillary cancer in analyzed period.

Conclusions. The profile of thyroid nodules underwent changes pointing out the higher frequency of thyroid cancer in recent years, what affected increased necessity of performing total thyreoidectomies. The more frequent stated total nodular degeneration and radicalization of thyreoidectomies may be associated with an observed tendency to prolonged conservative treatment.

Key words: thyroid surgery, nodular lesions of thyroid gland

Nodular goiter, dependent on its character and the extent of lesions, is generally a relative and in some situations an absolute indication to thyroid surgery. There was a significant progress in preoperative diagnostics of goiter associated mostly with the more frequent performed ultrasonographic examinations with use of the more and more modern equipment and as well as with the cytological examinations that usually in an univocal way can estimate the character of the goiter.

In Poland as well as all over the world the tendency to prolonged conservative treatment of nodular goiter and to radicalization of thyreoidectomies is often observed.

The aim of the study was to evaluate the extent of thyreoidectomy in given years from 1993 to 2006 performed in the 1st Department of General and Endocrinological Surgery with the estimation of the occurrence of different types of neoplasmatic lesions of thyroid gland.

MATERIAL AND METHODS

The study included 3477 patients in the 1st Department of General and Endocrinological Surgery that underwent thyreoidectomy for nodular disease from 1993 to 2006, with division into four periods: 1993-1996, 1997-2000, 2001-2003 and 2004-2006. The patients were divided into two groups in reference to the type of thyroid nodule and the extent of resection (total, near total and subtotal thyreoidectomy). Obtained results were statistically analyzed (STATISTICA 6.0) with application of tests dependent of the distribution of the data. p<0.01 was defined as significant.

RESULTS

According to the postoperative histopathological examinations there was a significant increase in the number of thyroid cancer.
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With a passage of time gradual increase in the number of papillary cancer was noticed (from 2.78% in 1993-1996 to 9.88% in 2004-2006), as well as follicular cancer (from 0.73% in 1993-1996 to 1.30% in 2004-2006) – tab. 1, fig. 1. Medullary cancer and non-differentiated cancer rarely occurred in analyzed material.

According to our data subtotal resections predominated and constituted 64.82% of all performed thyroidectomies. The study also showed (tab. 2 and fig. 2) a gradual increase in the number of total resections (from 14.86% in 1993-1996 to 27.33% in 2004-2006), as well as near total resections (from 12.53% in 1993-1996 to 27.77% in 2004-2006).

DISCUSSION

Subtotal thyroidectomy with the remaining of macroscopic healthy tissue performed for multinodular goiter has always been and still

Table 1. Thyroid cancer between 1993-2006, with division into four periods: 1993-1996, 1997-2000, 2001-2003 and 2004-2006. The value in brackets means the percentage in relation to all patients that underwent thyroidectomy for nodular disease in a given period (p<0.01)

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<tbody>
<tr>
<td>Papillary</td>
<td>34 (2.78%)</td>
<td>61 (5.24%)</td>
<td>38 (6.08%)</td>
<td>41 (8.87%)</td>
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<td>Follicular</td>
<td>9 (0.73%)</td>
<td>11 (0.94%)</td>
<td>3 (0.48%)</td>
<td>6 (1.30%)</td>
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<td>Medullary</td>
<td>6 (0.49%)</td>
<td>1 (0.09%)</td>
<td>1 (0.16%)</td>
<td>0 (0%)</td>
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<tr>
<td>Non-differentiated</td>
<td>2 (0.16%)</td>
<td>3 (0.26%)</td>
<td>2 (0.32%)</td>
<td>0 (0%)</td>
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Table 2. Type of thyroidectomy between 1993-2006, with division into four periods: 1993-1996, 1997-2000, 2001-2003 and 2004-2006. The value in brackets means the percentage in relation to all patients that underwent thyroidectomy for nodular disease in a given period (p<0.01)

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<tr>
<td>Total</td>
<td>85 (14.86%)</td>
<td>186 (16.05%)</td>
<td>175 (28.00%)</td>
<td>126 (27.33%)</td>
</tr>
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<td>Near total</td>
<td>153 (12.53%)</td>
<td>220 (18.98%)</td>
<td>139 (22.24%)</td>
<td>128 (27.77%)</td>
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<td>Subtotal</td>
<td>982 (80.43%)</td>
<td>753 (64.97%)</td>
<td>311 (49.76%)</td>
<td>207 (44.90%)</td>
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is the most popular operation in thyroid surgery (1).

Thyroid cancer is one of the most popular malignant neoplasms of human endocrine glans (1, 2). This group includes highly differentiated carcinomas that derive from thyreocytes, with papillary and follicular carcinomas, or less frequently medullary carcinoma and non-differentiated carcinoma (3).

In Poland, since the very beginning of the 90s’ there has been a steady increase of occurrence of highly differentiated thyroid cancers. The incidence of thyroid carcinoma in the Polish population has grown three or even four-fold in the past decade (3, 4, 5).

Basic treatment of differentiated thyroid cancers consists in complete, surgical removal of both thyroid lobes together with the tumor and metastatic regional lymph nodes on the side of the tumor (3, 6). Complete, bilateral removal of the thyroid gland significantly affects the final result of surgical treatment and many years of survival for patients without disease relapse. It also decreases the risk of local reoccurrence and increases the efficiency of supplementary postoperative treatment with radioiodine $^{131}$I of possible, local metastatic cancer microfocuses (3).

Subtotal resections predominated among all thyroidectomies performed in the 1st Department of General and Endocrinological Surgery from 1993 to 2006 and constituted 64.82%, what is consistent with the references data (7, 8). The gradual increase in the number of patients that underwent total thyreoidectomies was noticed, from 14.86% in 1993-1996 to 27.33% in 2004-2006, as well as near total thyreoidectomies, from 12.53% in 1993-1996 to 27.77% in 2004-2006. It may have been a result of progressive number of unfavourable cytological diagnosis and also the necessity of removing the more frequent observed totally changed thyroid gland. That could be associated with many a time prolonged conservative treatment what appeared after analysis of medical documentation. The increasing frequency of the more radical operations was also observed by other authors (7). For the past 20 years or so, total thyreoidectomy has been a recognized method in the management of multinodular non-neoplastic goiter in many surgical centers (7, 8, 9). Advocates of this method state that the frequency of postoperative early complications is similar to the less radical thyroid operations like subtotal resection of thyroid lobes (8, 9, 10). There are also voices saying that the risk of hemorrhage after total thyreoidectomy is lower than after less radical resections (8, 9, 10). In addition, total thyreoidectomy with careful ligation of the vessels is believed to decrease the risk of postoperative bleeding, in contrast to situation when well-vascularized tissue is left in situ as represented by stumps of thyroid lobes (8, 9, 10). Nowadays, improved hormonal supplementation protects from eventual goiter recurrence and a histopathological examinations many a time reveals local metastatic cancer microfocuses or cytological atypia. Goiter recurrence if reoperation is required poses a genuine challenge to the surgeon what is associated with the increased number of postoperative complications (7). Some authors suggest preventive administration of oral calcium preparations to all patients directly after total thyreoidectomy (10, 11). Others advise a standard postoperative single intravenous dose of calcium (12).

The real argument against total thyreoidectomy is potentially higher risk of postoperative early complications. Thomusch et al. suggest subtotal resection of thyroid lobes in the management of benign multinodular goiter because of increased number of complications after total operations like recurrent laryngeal nerves injury and hypocalcemia (13). Our experience point out the precise anatomical surgical technique as well as perioperative localization of recurrent laryngeal nerves and parathyroids lead to significant reduction of those complications (14).  

CONCLUSIONS

The profile of thyroid nodules underwent changes in given periods pointing out the higher frequency of thyroid cancer in recent years, what affected increased necessity of performing total thyreoidectomies.

The observed tendency to prolonged conservative treatment of nodular goiter has also influence on degeneration of the thyroid tissue and the necessity of performing more extensive operations.
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REFERENCES


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