CORRESPONDENCE

The Surgical Treatment of Bilateral Benign Nodular Goiter—Balancing Invasiveness With Complications

by PD Dr. med. Nada Rayes, PD Dr. med. Daniel Seehofer,
Prof. Dr. med. Peter Neuhaus in issue 10/2014

“Recurrent Laryngeal Nerve Palsy” Is Not Differentiated Enough

Unfortunately, the authors of this article kept referring to “recurrent laryngeal nerve palsy” in an undifferentiated manner. This “diagnosis” can conceal a minimum of nine different forms of laryngeal palsy, whose treatment and prognosis vary—and this excludes the differential diagnosis of non-surgical and non-neurogenic fixation (1, 3). Whereas neurogenic lesions that include the recurrent nerve (2) are associated with paresis of the affected vocal fold, a similar paresis affects the external branch of the superior laryngeal nerve, in which the vocal folds retain normal mobility. It is presumably for this reason that this variant is often misdiagnosed, although the postoperative voice pathology is highly abnormal (3). Knowledge of this variant without involvement of the recurrent nerve is very important for surgical treatment, because it can—and should—be prevented only by separating the nerve branch before ligating the superior thyroid vasculature; in our own experience neither conservative approaches nor phonosurgery yield substantially better results.

DOI: 10.3238/arztebl.2014.0435a

REFERENCES

1. Dralle H, Kruse E, Hamelmann WH et al.: Nicht jeder Stimmlippenstillstand nach Schilddrüsenoperation ist eine chirurgisch bedingte Rekurrensparese. *Chirurg* 2004; 75: 810–22.
2. Kruse E, Olthoff A, Schiel R: Functional anatomy of the recurrent and superior laryngeal nerve. *Langenbecks Arch Surg* 2006; 391: 4–8.
3. Kruse E: Funktionale Laryngologie. Elsevier GmbH, Urban & Fischer Verlag, München, 2012.
4. Rayes N, Seehofer D, Neuhaus P: The surgical treatment of bilateral benign nodular goiter—balancing invasiveness with complications. *Dtsch Arztebl Int* 2014; 111: 171–8.

Prof. Dr. med. Eberhard Kruse
Univ.-Medizin Göttingen
eberhardkruse@web.de

Organ Sparing Surgery

From a practical perspective, incomplete laboratory parameters, no thyroid scintigram, and the decision against fine-needle aspiration biopsy are the hindrances to defining the indication for thyroid nodule surgery. Data from the statutory health insurers confirm this individual clinical experience (1). At this point in time, patients are more prepared to interpret surgery to the wrong side of the thyroid as alleged surgical malpractice (2) than surgery to both thyroid lobes during the same procedure. In this setting, expert witnesses and judges will condemn doctors who operated organ

sparingly and thereby unintentionally caused the need for a second operation. The fear of cancer determines the decision about total thyroid resection—in the reported case of surgery to the wrong side of the thyroid as well as in a multitude of operations for benign nodular goiter.

The consequences will have to be:

- Individually tailored information about the risks and benefits of surgery for thyroid nodules
- Facilitating the observation of nodules in specialized institutions
- Preparation of performance data held by the Associations of Statutory Health Insurance Physicians, in order to provide quality enhancing advice to physicians.

The following objectives should be aimed for:

- To conduct a complete set of preoperative examinations
- To reduce the number of operations for nodular goiter
- To increase the proportion of Dunhill procedures
- Watchful monitoring of the frequency of thyroid malignancies.

DOI: 10.3238/arztebl.2014.0435b

REFERENCES

1. Wienold R, Scholz M, Adler JB: Versorgung bei Schilddrüsenknoten: Eine retrospektive Analyse von Krankenkassendaten. *Dtsch Arztebl Int* 2013; 110: 827–34.
2. Wüller M, Bauer R: Eingriffsverwechslung: die falsche Seite operiert. *Westfälisches Ärzteblatt* 2014; 55–6.
3. Rayes N, Seehofer D, Neuhaus P: The surgical treatment of bilateral benign nodular goiter—balancing invasiveness with complications. *Dtsch Arztebl Int* 2014; 111: 171–8.

Dr. med. Martin P. Wedig
Herne, trunc@gmx.de

A More Courageous Approach Is Possible

The authors thankfully proposed a paradigm shift in surgery for benign thyroid nodules, away from total thyroidectomy (TT) to leaving behind residual tissue. The Dunhill procedure is recommended as a compromise. The argument could be stated even more courageously. The even more convincing procedure of choice is the resection of the goiter that is appropriate in terms of findings and function. All nodules are resected and as much healthy residual tissue as possible is left behind. This is the resection method that entails the lowest rate of complications, also in terms of potential re-operations (1). Their incidence in Germany is about 3% (2). It seems questionable whether in all these patients, nodule free tissue residue was left after the first operation. Remaining nodules have a key role in recurring goiter development at a later stage. The risk of overlooking an occult cancer is also likely to be minimal for this operative technique.

Furthermore, there are initial indications of a possible association between quality of life and residual tissue volume (3). Where the thyroid residue was >8 mL, the rates of performance impairment and depressive states were notably lower after surgery. However, more comprehensive clinical studies are required to definitively clarify this observation.

It is easy to understand the theoretical background: TSH secretion is subject to a pulsatile rhythm. This is an important regulator in terms of adapting the required hormone to the situation and cannot be imitated by means of medical drugs. This regulatory circuit may function better the more thyroid tissue has been left. This is another aspect under which it is desirable to leave as much healthy thyroid tissue as possible.

In sum, the arguments in favor of resection appropriate for the finding and function are compelling. TT has its place in complete nodular organ restructure. The Dunhill procedure has its place in Graves' disease and disseminated thyroid autonomy. The thyroid is not a superfluous organ that should be completely removed without an urgent medical need.

DOI: 10.3238/arztebl.2014.0435c

REFERENCES

1. Dralle H, Lorenz K, Machens A: State of the art: surgery for endemic goiter – a plea for individualizing the extent of resection instead of heading for routine total thyroidectomy. *Langenbecks Arch Surg* 2011; 396: 1137–43.
2. Steinmüller T: Werden in Deutschland zu viele Schilddrüsenoperationen durchgeführt? In: Dralle H (ed.): *Schilddrüse 2009. Qualitätsstandards in der Schilddrüsenmedizin*. Berlin: Lehmanns Media 2010; 45–7.
3. Vaillant-Rieder D, Grußendorf M: Postoperative Befindlichkeit nach Strumektomie in Abhängigkeit von der Größe der belassenen Schilddrüsenreste. In: Reiners C., Weinheimer B. (eds.): *Jod und Schilddrüse*. 13. Konferenz über die menschliche Schilddrüse. Berlin: Walter de Gruyter 1998; 130–6.
4. Rayes N, Seehofer D, Neuhaus P: The surgical treatment of bilateral benign nodular goiter—balancing invasiveness with complications. *Dtsch Arztebl Int* 2014; 111: 171–8.

Prof. Dr. med. Peter K. Wagner
Rosenheim, chirurgie.rosenheim@ro-med.de

In Reply

Professor Wagner's comment from a surgeon's perspective shows that the recommendation for general thyroidectomy in bilateral nodular goiter is not generally accepted, and for good reasons. In our opinion, what is required is a differentiated approach to surgical therapeutic planning. In this setting, bilateral subtotal resection can make sense in the individual case scenario—as suggested by Professor Wagner—especially as the already cited retrospective study by Fikatas et al. showed that only 0.9% of patients in whom bilateral resection was undertaken that was adapted to the findings developed a clinically relevant recurrence in the long term (1). In the published prospective randomized studies the rate of repeat operations for recurrences after subtotal resection was also very low, at 1.5%. In

many cases of bilateral goiter, one side, or one nodule, is found to be dominant. We think that in these cases the Dunhill procedure is superior to bilateral subtotal resection, especially in view of the possibly required re-operation at short notice, in cases where post-hoc histology confirmed the presence of cancer. In contrast to thyroidectomy, the Dunhill procedure was not associated with a much higher complication rate in the studies we cited in our article.

Wedig points out that the indication for surgery was probably too uncritical. This problem has recently been discussed in *Deutsches Ärzteblatt* (2). We agree with Wedig that even when less radical procedures than thyroidectomy are used the indication for surgery should not be expanded. Close cooperation between the treating endocrinologist and the endocrine surgeon is crucial in this setting. New insights also need to be considered, especially concerning the prognosis of differentiated thyroid cancers.

We would ask our readers to be lenient as we were not able to go into detail about all of the forms of laryngeal palsy mentioned by Professor Kruse. We are obviously aware that several laryngeal pathologies may occur after thyroid operations. Several presentations at the 2014 Congress of the German Surgical Society focused on this subject. A laryngostroboscopic analysis of 761 patients from 2009 showed a laryngeal complication rate of 42% after goiter surgery. Only 6% was associated with a surgery-related palsy of the laryngeal recurrent nerve (3). Since almost all published studies mention only recurrent nerve palsy, we were able overall to only use recurrent nerve palsy for comparative analyses that make sense.

It is worth pointing out that, when selecting the surgical technique for bilateral benign nodular goiter, a greater variety of therapeutic options should be available to choose from than just general thyroidectomy, and that one should proceed in a findings-oriented and patient-oriented manner in this setting.

DOI: 10.3238/arztebl.2014.0436

REFERENCES

1. Fikatas P, Lienenlücke RH, Koch B, Vorländer C, Wahl RA: Regeleingriff bei Knotenstruma. Für eine befundadaptierte (morphologiegerechte, funktionskritische und selektive) Operationsstrategie. In: Dralle H (ed.): *Schilddrüse 2009*. Berlin: Lehmanns Media 2010; 89–91.
2. Wienhold R, Scholz M, Adler JB, Günster C, Paschke R: The management of thyroid nodules—a retrospective analysis of health insurance data. *Dtsch Arztebl Int* 2013; 110: 827–34.
3. Echternach M, Maurer C, Mencke T, Schilling M, Verse T, Richter B: Laryngeal complications after thyroidectomy. Is it always the surgeon? *Arch Surg* 2009; 144: 149–53.
4. Rayes N, Seehofer D, Neuhaus P: The surgical treatment of bilateral benign nodular goiter—balancing invasiveness with complications. *Dtsch Arztebl Int* 2014; 111: 171–8.

Prof. Dr. med. Nada Rayes, PD Dr. med. Daniel Seehofer, Prof. Dr. med. Peter Neuhaus
Klinik für Allgemein-, Viszeral- und Transplantationschirurgie, Charité Campus Virchow, Berlin, nada.rayes@charite.de

Conflict of interest statement

The authors of all contributions declare that no conflict of interest exists.