

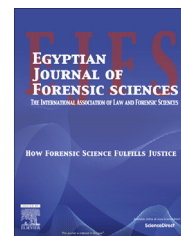
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### SHORT COMMUNICATION

# Malpractice claims related to recurrent laryngeal nerve injury: Forensic remarks regarding 15 cases

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#### KEYWORDS

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**Abstract** Malpractice claims concerning recurrent laryngeal nerve (RLN) injuries are often related to thyroid surgery but they can involve clinicians of different specialisations. Our survey was made considering expert opinions on claims for medical malpractice evaluated at Brescia Institute of Forensic Medicine during the period 1992–2012: 15 cases concerned RLN injury. Malpractice was identified in 10 cases, according to these conditions: low pre and intra-operative risk of nerve injury, no documentation showing that the nerve was isolated and preserved despite the existence of potential risk factors. An accurate, well written and complete surgical report is the main tool for the expert examination in malpractice claims.

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#### 1. Introduction

Malpractice claims concerning RLN (recurrent laryngeal nerve) injuries are often related to thyroid or parathyroid surgery, but different surgical specialties may be involved, including general surgery, cardiothoracic surgery and neurosurgery [1–7].

The aim of this study was to assess the existence of professional liability in 15 cases of RNL injury: identifying areas of high medico-legal risk and clarifying the medico-legal outcomes of specific surgical errors may lead to the development

of risk reduction strategies and improve the quality of surgical activity.

#### 2. Materials and methods

Data collection was made by examining expert opinions on claims for medical malpractice evaluated by the Brescia Institute of Forensic Medicine during the period 1992–2012. Fifteen cases regarding RLN injury were found. According to medico-legal reports, for each case the following data were considered: claimant (age and sex); clinical history (disease, potential risk factors for RLN injury); surgical procedure; patient outcome (side of the injury, time of symptoms onset, early and long term symptoms); possible management of RLN injury; settlement of medico-legal litigation (penal court, civil court, hospital risk management); profiles consistent with medical malpractice.

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### 3. Results

Our analysis identified 15 cases of RLN injury during the survey period 1992–2012 (Tables 1 and 2). In relation to sex distribution, we observed a male predominance with 8 cases (53%). The age distribution presented a maximum number of cases in the age group 41–60 years and 61–80 years (mean age 47.1 years). In terms of settlement of medico-legal litigation, 27% of the cases were addressed in penal court, 53% in civil court and 20% in a risk management unit (that is an hospital unit devoted to the assessment of potential medical or surgical errors).

Surgical specialities were divided in three groups: 10 cases (66.7%) concerned thyroid surgery, 3 cases (20%) neck surgery and 2 cases (13.3%) thoracic surgery. Regarding thyroid surgery, multinodular goitre was the most common diagnosis (6 cases), followed by thyroid papillary cancer (2 cases), Grave's disease (1 case), and thyroid nodule (1 case). Thyroid surgical procedures included 8 total thyroidectomies and 2 subtotal thyroidectomies. Regarding neck surgery, 2 cases concerned vascular surgery (1 carotid artery aneurysmectomy and 1 carotid endoarterectomy) and one a resection of a carotid chemodectoma, whilst of the 2 thoracic surgery cases one was a mediastinoscopy for adenopathies and one a cardiac surgery for Ductus Botalli repair.

Regarding risk factors for RLN injury, in only 3 cases there was the need of a large resection (that can easily explain the nerve lesion).

According to surgical reports, in 7 cases there was an intra-operative RLN identification.

Unilateral RLN injury occurred in 11 cases, almost equally distributed by side: 5 left and 6 right. Bilateral RLN palsy (4 cases) resulted in life-threatening dyspnoea in 2 cases.

Considering the claims' outcome, in 10 cases (66.7%) liability was assessed: 9 cases as negligence in the surgical procedure and 1 case as negligence in post-operative monitoring. In 5 cases (33.3%) RLN injury was considered as an unavoidable complication.

### 4. Discussion

As previously reported [8–12] thyroid surgery, and above all total thyroidectomy, is still the most common surgical procedure responsible for RLN injury (10 cases in this survey; 66.7%).

Analysis of the surgical reports showed that in less than half of the cases the nerve was identified during surgery. Intraoperative nerve monitoring was mentioned in one case only; however, in relation to the impact of RLN monitoring on nerve injury rate, some Authors found no statistically significant differences between visual identification alone and combined to nerve monitoring [13–18].

Regarding the causal relationship between surgical procedure and nerve injury, for immediate, or slightly subsequent to surgery, clinical presentation of symptoms related to recurrent laryngeal palsy (in 13% of cases there was an immediate acute respiratory distress and in 66.7% of cases symptoms appeared within 2 days) allowed a quite clear relationship. On the other side, when symptoms appeared later (in 2 cases hoarseness developed more than 15 days after the surgical procedure), nerve injury was probably due to surgical scars or to haematoma compression.

To establish whether nerve injury was due to a break in the so called "duty of care", the surgical performance was examined according to surgical reports and in 10 cases (67%) malpractice was recognised. In 9 cases there was a pre and intra-operative low risk of nerve injury or no documentation in surgical reports showing that the nerve was identified and preserved despite the existence of potential risk factors. In 1 case negligence was recognised in an inadequate post-surgery monitoring with a late evacuation of an haematoma. In 5 cases the nerve injury was considered as a non-preventable complication, not attributable to surgeon's performance (anatomical variant in 1 case; existence of an inflammatory state responsible of a difficult surgical field in 2 cases; need to knowingly sacrifice the nerve in order to radically treat the disease in 2 cases).

**Table 1** Claimants data.

Case	Gender	Age (years)	Settlement of medico-legal evaluation
1	Male	38	Penal court
2	Female	51	Penal court
3	Female	64	Penal court
4	Male	32	Penal court
5	Male	63	Civil court
6	Male	Not reported	Civil court
7	Male	34	Civil court
8	Male	55	Civil court
9	Male	64	Civil court
10	Female	9	Civil court
11	Female	48	Civil court
12	Female	72	Hospital risk management
13	Male	Not reported	Hospital risk management
14	Female	52	Hospital risk management
15	Female	30	Civil court

**Table 2** Clinical data and outcome of the medico-legal evaluation.

Case	Diagnosis	Risk factors for RLN injury	Surgical procedure	Intraoperative identification	Side	Timing of symptoms	Symptoms	Therapy	Outcome of the medico-legal evaluation
1	Thyroid papillary cancer	Low	Total thyroidectomy	Yes	Left	1 day	Dysphonia	Logopedic therapy	Fault: inappropriate surgical treatment
2	Multinodular goitre	Low	Total thyroidectomy	Not reported	Bilateral	Immediate	Acute respiratory distress	Intubation and tracheostomy	Fault: inappropriate surgical treatment
3	Multinodular goitre	Low	Total thyroidectomy	Not reported	Bilateral	1 day	Dysphonia and dyspnoea	Tracheostomy and cordotomy	Fault: inappropriate surgical treatment
4	Multinodular goitre tracheal compression	Low	Subtotal thyroidectomy	Yes	Bilateral	2 days	Dysphonia and dyspnoea	Logopedic therapy	Fault: inappropriate surgical treatment
5	Carotid artery aneurism and stenosis	Low	Carotid aneurysmectomy	Not required	Right	30 days	Hoarseness and dysphonia	No therapy	No fault: complication independent of the surgeon (inflammatory state)
6	Mediastinal adenopathies	Low	Mediastinoscopy	Not reported	Right	2 days	Dysphonia	Logopedic therapy	No fault: complication independent of the surgeon (inflammatory state)
7	Carotid chemodectoma	Extended resection required	Chemodectoma surgery resection	Not reported	Right	2 days	Dysphonia and dysphagia	Logopedic therapy	No fault: complication independent of the surgeon (tumour expansion)
8	Multinodular goitre	Low	Total thyroidectomy	Yes	Right	2 days	Dysphonia	Thyroplastic revision	Fault: delay in haematoma evacuation
9	Carotid artery stenosis	Low	Carotid endarterectomy	Not required	Left	2 days	Dysphonia and dysphagia	Logopedic therapy	Fault: inappropriate surgical treatment
10	Persistent duct arteriosus Botalli	Low	Ductus Botalli repair	Not reported	Left	15 days	Hoarseness	Logopedic therapy	No fault: complication independent of the surgeon (anatomical variability)
11	Multinodular goitre with tracheal compression	Extended resection required	Total thyroidectomy	Not isolated	Bilateral	1 day	Acute respiratory distress, dysphagia	Not reported	Fault: inappropriate surgical treatment
12	Thyroid papillary cancer	Not reported	Total thyroidectomy	Yes	Left	1 day	Dysphonia	Logopedic therapy	Fault: inappropriate surgical treatment
13	Multinodular goitre	Extended resection required	Total thyroidectomy	Yes	Left	2 days	Hoarseness and dysphonia	Not reported	No fault: complication independent of the surgeon (extended resection required)
14	Graves' disease	Not reported	Total thyroidectomy	Yes	Right	Immediate	Acute respiratory distress	Tracheostomy	Fault: inappropriate surgical treatment
15	Thyroid nodule	Low	Subtotal thyroidectomy	Yes	Right	1 day	Dysphonia	Intraoperative suture	Fault: inappropriate surgical treatment

## 5. Conclusions

RLN paralysis is a complication of different surgical procedures across multiple specialities. Claims analysis can offer a glimpse into what went wrong and what steps can be undertaken to avoid both the complication and subsequent litigation. A detailed description of all steps in surgical reports is the “central nucleus” of the expert examination: an accurate, well written and complete surgical report is the main tool for the expert examination in malpractice claims [19]. In fact, lack of description of any difficulties, complications or problems during surgery allows to assume that the surgeon recognised and isolated the nerve: in these cases nerve injury can be explained only through an improper execution of the procedure. Surgeons should always keep in mind to ensure the utmost care to medical records, especially to the surgical report which must be well written and complete in all its parts. It would be useful that the report is drawn up and signed by all the operators involved (surgeons, anaesthetist, nurses).

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## Conflict of interest

None declared.

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