Phoniatric aspects of microlaryngoscopy

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PHONIATRIC ASPECTS OF MICROLARYNGOSCOPY

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RIASSUNTO

ASPETTI FONIATRICI DELLA MICROLARINGOSCOPIA.

Si riporta una casistica di 704 microlaringoscopie eseguite nel servizio di Foniatria della clinica universitaria o.r.l. di Malmö.

Il rapporto tra maschi e femmine è di 5:2.

I casi possono essere suddivisi in condizioni infiammatoria e simili 9%, lesioni cancerogene e precancerose 44%, paresi e diagnosi varie insolite 8%, lesioni benigne alle corde vocali 38%.

Dai dati anamnestici e dai risultati delle indagini si possono sottolineare i seguenti punti:

il cancro laringeo si è accertato anche in assenza di raucedine;

una componente compensatoria « funzionale » si è rilevata in numerosi casi di lesione organica della laringe;

nessun caso di cancro laringeo ha dato risultati stroboscopici normali (nessun falso negativo), si ritiene altamente improbabile la presenza di un carcinoma invasivo in presenza di dati stroboscopici normali;

casi di edema della corda vocale (degenerazione polipoide) venivano trattati con astinenza di tabacco per tre mesi, chirurgia prudente conservatrice (non pelatura) e qualora necessario trattamento vocale logopedico postchirurgico;

un miglioramento qualitativo della voce è risultato, nella maggioranza dei casi, dopo solo tre settimane.

La valutazione pre- e post-chirurgica dell'altezza tonale con l'analisi della frequenza glottica (GFA) ha rilevato una ridotta altezza tonale statisticamente significativa nei maschi fumatori (con pre- lesioni cancerogene) e nelle femmine fumatrici con lesioni benigne, quando si confronta con corrispondenti gruppi di non fumatori.

In conclusione nell'eseguire la microchirurgia endolaringea si deve fare una prudente distinzione tra i prelievi per sospetto cancro e reazioni da lesioni non maligne che interferiscono con la funzione vocale, in quest'ultimo caso lo scopo della chirurgia non dovrebbe essere solo quello di ristabilire la forma della laringe ma anche di raggiungere un'ottimale funzione vocale.

Il paziente che deve essere trattato in microchirurgia endolaringea dovrebbe essere sottoposto sempre ad un accurato esame foniatrico pre- e post-operatorio includendo una documentazione acustica con un registratore di alta qualità.

Si consiglia una accurata preparazione foniatrica ai chirurghi che eseguono microlaringoscopie per fonochirurgia.

Parole chiave: Fonochirurgia; microlaringoscopia; aspetti foniatrici.

There are two reasons to add another paper to the already abundant literature on microlaryngoscopy (MLS). One is, that the data to be presented here can be considered as quite representative for the population of an industrialized country. In fact, the Swedish health care system is such that all patients within the district of our town Malmö (250 000 inhabitants) who need laryngeal surgery are referred to our clinic. The other reason is, that the present data is reviewed from a special, *viz.* a phoniatric aspect. The basis for this is that microsurgery of the larynx is the responsibility preferably of our phoniatric department. Therefore, before and after the microlaryngoscopy all our patients have the same standardized investigation and are examined by a phoniatrician who, in the majority of the cases, also carries out the operation.

Indications for endolaryngeal microsurgery and standard procedure

Although not always clearly distinguished, there are at least three separate indications for MLS with different aims: inspection of the larynx; obtaining a spe-

cimen for microscopic diagnosis; and the improvement of voice quality (phonosurgery). The different aims put different claims on the laryngeal surgeon and the procedures.

There is only a minimal number of patients, where the larynx is impossible to visualize by indirect mirror laryngoscopy, providing the examiner uses correct technique, sufficient patience, and guides the patient, who cannot be expected to know by himself how to cooperate most efficiently. Local anaesthesia may be necessary, especially if the mucous membranes of the pharyngeal port are irritated by inflammation or excessive smoking. A gentle pull on the anaesthesized epiglottis by an instrument may free the sight to the anterior commisure. Sometimes the examiner may want to resort to a laryngeal endoscope or a fiberlaryngoscope before deciding to perform a microlaryngoscopy for inspection of the larynx. In few cases that are difficult to examine, however, do these instruments seem superior to ordinary mirror laryngoscopy, and fiberlaryngoscopy via the nasal airway especially is considered very disagreable by a number of patients. A general anaesthesia without intubation may suffice to rule out gross laryngeal pathology by aid of direct laryngoscopy in a short period of apnoea. Generally, however, we prefer MLS with intubation even for inspection only, to get proper time for the use of endoscopes with angled optics permitting a thorough examination of the subglottal compartment and other regions of the endolarynx difficult to visualize by aid of the operating microscope alone.

Laryngeal endoscopes are especially suitable to estimate the extension and size of suspected malignant lesions. In such cases the laryngeal surgeon must either strive to get representative specimens or, provided the lesion is suitable in size and location, accomplish a radical excision. Obviously, in cases of laryngeal malignancy, the question of post-surgical voice quality has to be one of minor concern.

On the other hand, in cases with clearly non-malignant lesions of the vocal folds like polyps, cysts and nodules, an improvement of the voice quality is the only rational indication for surgery. In these cases, the common laryngological approach to aim at radical excision of the lesion and normalized appearance of the larynx does not always seem adequate. First a pre-operative investigation should clarify, to what extent the non-malignant lesion matters for the patient's hoarseness, as some lesions may exist parallel with but without being the cause of dysphonia. During phonosurgical interventions the laryngologist must take care not to disturb the delicate functioning structures often named the body and the cover of the vocal folds (Hirano, 1981). Excision of the submucosal "cover" down to the vocal ligament may yield an excellent appearance of the vocal folds, but the resulting adhesion of the epithelium directly to the "body"-layer may become a chronic obstacle to the normalization of vocal function. The awareness of the functional results of phono-surgery among laryngologists would undoubtedly increase if pre- and post-operative tape recordings of the voice became routine (Izdebski, 1981), as pre- and post-operative hearing tests are in connection with surgery for the improvement of hearing.

As with other patients in our department, all cases in the data presented in this paper underwent high quality tape recordings in a standardized reproducible setting before surgery and again at reviews 3 weeks and 6 months after the operation. The voice quality was systematically

evaluated according to a modified GRBAS-scale (Hirano, 1981) with a special aim to distinguish auditively between the "organic" and "functional" components of hoarseness, like harshness compared to strain, respectively. At the same time the mean and range of the speaking voice pitch was determined by aid of the glottal frequency analyzer (GFA, Model 05, Teltec Company, Lund/Sweden), based on electroglottographical measurement of the glottal vibratory period. Besides a thorough case history (not generally lasting less than 20 minutes) and the evaluation of the voice quality, the decision about surgery was based on an examination of the larynx by indirect microscopy and microstroboscopy (Kitzing, 1985). A detailed description of the phoniatric investigation can be found in Sopko, 1983.

The microlaryngoscopies were performed under general anaesthesia (induction with pentothal sodium; fentanyl, muscle relaxant) and intubation with a low pressure cuffed tube, generally 6.0 mm o.d. All but the edentulous patients were fitted with individually molded tooth protections of acrylic. Our instruments used for MLS were usually those described by Kleinsasser (1976). Only in lesions located in the posterior commissure, we often used a specially modified laryngoscope fitted with two small metal blocks on its distal upper side to aid the tube riding on top of the laryngoscope. Photographic documentation was established in each case by aid of a camera attached to the microscope and a fiberoptically transmitted flash developed in our department (Kitzing, 1980).

Patients

The material presented here includes practically all the microlaryngoscopies performed at our clinic within the period between 1971 and 1980. The number of operations increased during the first years after the method was adopted until it reached a rather stable and still valid level of 100-110 operations a year. It comprises a total of 704 operations, 493 performed on male patients and 211 on females. 63% of the operations were the patients' first microlaryngoscopy, and 17% were their second. The remaining 20% were performed on patients with 2 or more previous microlaryngoscopies and were usually carried out as reviews following tumour therapy. The age distribution of the entire material appears in table 1.

TABLE 1. — *Age distribution of all cases (493 males and 211 females) at the time of microlaryngoscopy.*

age (years)	percentage of cases
0 - 10	2
11 - 20	2
21 - 30	7
31 - 40	13
41 - 50	14
51 - 60	26
61 - 70	26
more than 70	10

Diagnoses

For a general overview, the entire material comprising 704 microlaryngoscopies can be divided into inflammatory and similar conditions (9%); cancer and precancerous lesions (44%); pareses and various infrequent diagnoses (8%); and benign lesions of the mucosa (38%). This means, that (pre-)malignant lesions and cases of phono-surgery add up to about 40% each, whereas the rest are about

equally divided into inflammatory lesions and a group of unfrequent diagnoses, respectively. A detailed account of the different diagnoses is shown in tables 2 and 3.

Some comments to table 3 seem appropriate. Among the inflammatory lesions there is one patient who has had no less than 14 operations for recurrent laryngeal papilloma. The (pre-)malignant group includes 97 reviews. The repeated surgery for pareses is explained by our strategy to give test injections with glycerine before the definitive teflon injections. The repeated microlaryngoscopies for benign lesions are explained by recurrences of polyps, contact granulomas and cysts (13 cases) as well as by the necessity of a two stage approach in severe cases of Reinke's oedema (21 cases).

Complications in connection with MLS

No major complications were observed in this series of microlaryngoscopies. Minor complications to be mentioned were small tooth injuries in 8 cases (1%), submucous haematomas in the pharynx or on the gingiva in 13 cases (1.8%), and cardiac reactions related to the anaesthesia in 9 cases (1.3%). Nine other cases were considered not to be totally uncomplicated for different reasons, such as some transitory laryngeal stridor or haematomas of the vocal folds after glycerine injections, and severe unpredicted hoarseness of short duration. To sum up, according to the rather rigorous criteria used in this study, at least some complications were observed in 5.5% of the microlaryngoscopies. This compares well with other reports on complications in connection with MLS (Heiden *et al.*, 1976; Haas and Döderlein, 1978). Additionally, it should be mentioned that the operation was considered

TABLE 2. — *Diagnoses at first microlaryngoscopy (443 cases).*

	males	females
1. *Inflammatory conditions*		
Chronic laryngitis	20	3
Intubation granuloma	3	6
Tuberculosis	2	—
Laryngeal papilloma	3	2
	28	11
2. *Cancer and pre-cancerous lesions*		
Dysplasias (keratosis with or without atypies)	46	8
Carcinoma in situ	13	2
Carcinoma, radiotherapy	39	2
Carcinoma, laryngectomy	12	—
Abrikossoff tumour	—	1
Control (earlier surgery elsewhere)	7	—
	117	13
3. *Various pathology of the larynx*		
Laryngeal paresis (injection)	11	11
Immobilisation of vocal fold	1	1
Fracture of laryngeal cartilage	1	1
Laryngocoele	3	1
Sulcus glottidis	1	—
Condyloma acuminatum	1	—
Amyloidosis	1	1
Lymphangioma, haemangioma	1	1
Cyst of the epiglottis	1	—
Tracheobronchopathia osteoplastica	1	—
Chondroma	—	1
Diagnostic microlaryngoscopy	—	2
	22	19
4. *Benign laryngeal lesions causing "organic" dysphonia (phonosurgical cases)*		
Polyps	56	29
Cysts	16	15
Nodules	1	24
Marginal oedemas (Reinke)	17	55
Contact granulomas	19	—
Hyperplasia of ventricular folds	1	—
	110	123

TABLE 3. — *Diagnoses of case undergoing MLS a second or further time (261 cases).*

	males	females
Inflammatory conditions	17	8
(Pre-)cancerous lesions	175	8
Various pathology	7	12
Benign lesions	17	17
	216	45

as "difficult" to perform in 46 of the male and 17 of the female cases (8.9%). The reasons were anatomical obstacles like prominent front teeth, narrow throat or a rigid cervical spine. For similar reasons, during the ten year period (1971-1980) it was impossible to perform a microlaryngoscopy *ad modum* Kleinsasser in 7 cases (1%), which are not included in this study.

Anamnestic data and examination results in special diagnoses

Seven diagnostic groups comprised a sufficient number of cases to motivate a more detailed description, *viz.* those with epithelial dysplasia (pre-cancerous lesions), invasive carcinoma (including in situ lesions), polyps, cysts, nodules, marginal oedemas (including Reinke's oedemas), and contact granulomas. The results appear in table 4. They are consistent with similar reports (e.g. Haas and Döderlein, 1978; Kawase *et al.*, 1982). Even if there is no place for a detailed discussion, some interesting points can be made.

PRE-CANCEROUS LESIONS AND CANCER

The ratio between pre-cancerous lesions and laryngeal cancer in similar papers is reported to be about 1 : 5 (Kleinsasser, 1976; Haas and Döderlein, 1978) whereas it is about 4 : 5 in this study. The reason may be to some extent the different organization of the health care in other countries, where less serious conditions are not referred to the university hospital but have surgery in the periphery. Another reason may be the high degree of awareness among our urban population and the practitioners in our district concerning the seriousness of long standing hoarseness allowing diagnosis so early that the lesions have not yet become invasive. From the lists of symptoms and evaluations of voice quality it appears, that laryngeal cancer may in exceptional cases occur even in the absence of hoarseness. On the other hand, in numerous cases of organic lesions of the larynx, there can also be observed a component of "functional" hoarseness, usually manifest as a strained voice quality.

An important result of this study is that there were no normal findings (false negatives) in the stroboscopic examinations of cancer, whereas the vibratory pattern of the vocal folds was considered still normal in almost half of the cases with epithelial dysplasias. We agree with the conclusions by Haas and Döderlein (1978), that a pathological stroboscopic finding is not conclusive evidence of cancer but that the occurrence of invasive carcinoma is highly improbable if the stroboscopy is normal. As a result of our surgical approach to suspectedly malignant lesions in not simply taking a biopsy, but trying to remove the entire visible lesion, some of these patients had a postoperative improvement in their voice quality and even a normalization of their stroboscopic findings.

As the oedematous vocal folds after radiotherapy are most sensitive to mechanical trauma from voice misuse and abuse, most of these patients received pro-

TABLE 4. — *Symptoms and findings in some frequent diagnoses.* (The figures indicate percentage of occurrences related to number of cases, n.).

Diagnosis	Epithelial dysplasia		Cancer		Polyp		Cyst		Nodules		Oedema		Contact granuloma	
Sex	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Number of cases, n	46	8	64	4	56	29	16	15	—	24	17	55	19	—
Mean age (years)	58	46	63	43	41	46	47	55	—	31	50	51	54	—
Symptoms:														
hoarseness	80	88	83	75	82	83	44	80	—	83	65	87	37	—
irritated throat	11	13	2	25	7	17	6	20	—	17	6	13	58	—
no laryngeal symptoms	9	—	5	—	7	3	25	7	—	4	6	2	5	—
Symptom duration more than 6 months	78	50	75	—	35	46	33	40	—	70	44	69	41	—
Less than 4 weeks from 1st visit to MLS	76	88	100	—	77	75	56	93	—	46	59	42	68	—
Occupational voice stress	13	25	6	25	23	28	6	7	—	46	24	88	—	—
noise	—	13	6	—	23	—	—	7	—	4	—	18	—	—
air pollution	17	13	8	25	5	7	19	7	—	4	12	18	11	—
Smoking: 0-5 cigarettes/day	24	38	41	50	47	48	37	80	—	70	30	24	95	—
more	76	63	59	50	53	52	63	19	—	31	70	76	5	—
Voice quality: normal	26	25	6	25	14	7	50	20	—	—	18	2	26	—
harsh	52	50	70	50	50	72	25	33	—	58	53	80	11	—
breathy	9	13	23	25	36	31	25	7	—	50	24	29	53	—
strained	20	63	17	50	25	45	19	53	—	63	18	36	26	—
Laryngeal stroboscopy:														
normal	37	50	—	—	61	59	69	67	—	88	65	69	95	—
pathological	37	25	67	50	13	14	—	—	—	—	6	11	5	—
not performed	26	25	33	50	27	28	31	33	—	13	29	20	—	—

continued

phylactic voice therapy, reducing the number of chronic hoarseness in these cases to a minimum (Fex and Henriksson, 1970).

POLYPS, CYSTS, NODULES, MARGINAL OEDEMAS

The age and sex distribution of these non-malignant lesions is in agreement with other reports, with polyps prevailing in males, oedematous lesions in (smoking) females, and cysts being about equally distributed, whereas nodules seem to occur exclusively in younger females and children of both sexes. We never recommend surgical intervention for children with nodules (Håkansson and Kitzing, 1984).

The relatively low percentage of oedemas having MLS within 4 weeks after their first visit is due to our hesitation to operate, while the patient is still a habitual smoker. As a result of our indivi-

TABLE 4, continued. — *Postoperative controls and voice therapy* (percentage of n.).

Diagnosis	Epithelial dysplasia		Cancer		Polyp		Cyst		Nodules		Oedema		Contact granuloma	
Sex	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Number of cases, n	46	8	64	4	56	29	16	15	—	24	17	55	19	—
Postoperative control	96	100	70	100	93	100	100	87	—	100	94	96	95	—
Control within 3 weeks	87	100	44	100	77	97	94	87	—	83	76	81	89	—
Voice quality: improved	28	75	17	50	77	76	44	40	—	71	71	64	42	—
same	30	13	20	25	13	21	38	47	—	21	18	20	47	—
impaired	37	13	22	25	4	3	19	—	—	8	6	11	5	—
Laryngeal stroboscopy:														
normal	7	25	18	50	63	37	44	60	—	46	41	31	63	—
pathological	48	50	19	25	18	52	13	—	—	17	41	44	16	—
not performed	41	25	25	25	11	10	44	27	—	38	12	20	16	—
Voice therapy	17	13	88	75	7	24	6	7	—	83	12	25	16	—
Number of sessions:														
less than 10	2	—	3	—	2	—	—	7	—	—	—	4	—	—
10 - 30	11	—	71	50	5	21	6	—	—	79	6	7	11	—
more than 30	4	13	14	25	—	3	—	—	—	4	6	15	5	—

dualized and quite intense counselling (including the prescription of nicotine chewing gums and tranquilizers in some cases) most of our patients succeed in freeing themselves from their dependence on tobacco. After about 2 months a remission of the oedema can usually be seen, sometimes to such an extent, that surgery becomes unnecessary.

When removing oedemas, we definitively refrain from "stripping" of the vocal "cords" with just one instrument as originally described by Loré (1934). Instead, we prefer an exact anatomical dissection with forceps and scissors (or knife), removing just the oedema but never dissecting down to the vocal ligament, thereby leaving the normal submucous layer ("cover" according to Hirano) intact and avoiding postoperative epithelial adhesions to the vocal ligament. This seems to be the reason, why we seldom observe in our patients any severe or long standing hoarseness after removal of oedemas (cf. Remenár *et al.*, 1984). On the contrary, the voice quality was postoperatively improved in the majority of our cases and about a third had regained a normal vocal fold vibratory pattern as observed by stroboscopy. Furthermore, far from all cases having surgery for vocal fold oedemas needed logopedic voice therapy.

CONTACT GRANULOMAS

The most conspicuous finding in the group of contact granulomas was that all cases were males, and almost exclusively non-smokers. The main symptom is not hoarseness but irritation of the throat, even if at least some degree of dysphonia (mostly as breathy and strained voice quality) can be observed in the majority of

TABLE 5. — *Mean pitch of speaking voice.*

Sex	Smoking	Type of lesion	Number of cases (n)	Mean age (years)	Mean pitch (Hz)	n	Controls after	
							4 weeks pitch change (Hz)	7 months pitch change (Hz)
male	non-smoker	benign	38	46	118.5	17	−6.1**	−8.4***
male	non-smoker	(pre-)malignant	12	67	144.2	8	3.8	−3.9
male	smoker	benign	62	45	111.5	34	−1.6	−0.2
male	smoker	(pre-)malignant	52	60	118.8	38	−0.9	−2.5
female	non-smoker	benign	32	46	194.2	21	−3.3	0.6
female	non-smoker	(pre-)malignant	2	(24,60)	231.5			
female	smoker	benign	60	43	161.2	38	15.3***	14.7***
female	smoker	(pre-)malignant	8	41	182.1	7	1.4	0.3
female	marginal-oedema		44	48	152.8	41/28	21.0***	18.8***

cases. Because there is a great tendency for contact granulomas to recur we do not consider microlaryngoscopy as the therapy of choice. The cases included in this paper had surgery either to secure the diagnosis microscopically or because the granulomas were of a size sufficient to block glottal closure (explaining the high percentage of cases with breathy quality of their voice). Some cases had remissions after surgery, sometimes after additional treatment against oesophageal reflux. Other needed logopedic voice treatment, and still others became free of symptoms after some time in spite of remaining granulomas.

Mean pitch of the speaking voice

The results of the pitch analyses by GFA appear in table 5, which also shows the statistically significant post-operative changes. These were a slight decrease of pitch in the male non-smokers with benign lesions, and an almost 10% increase in the female smokers also with benign lesions. The lowered pitch in the males can be explained by the disappearance of the compensatory strain and pitch elevation which is often observed in males with "organic" dysphonia. The raised post-operative pitch level in the female smokers is most probably due to the combined effect of the post-surgical volume decrease of the vocal folds and our intense persuasion of the patients to give up smoking. As shown in table 5, this effect was most conspicuous in female patients with marginal oedemas of their vocal folds, a result which compares with a report by Fritzell *et al.* (1982). The pitch lowering effect in females of tobacco smoking has been reported in earlier studies (Gilbert and Weismer, 1974, Abberton, 1976, Kitzing, 1979). A similar tendency can be observed in the present data, with statistically significant lower pitch occuring in smoking males with (pre-)cancerous lesions and in smoking females with benign lesions, compared to the corresponding groups of non-smokers, respectively.

Thus in the clinical work with patients, the evaluation of measured post-operative pitch changes must be individualized and interpreted in the light of other clinical

findings, mainly from laryngeal stroboscopy and the auditory evaluation of the pre-and post-operative voice quality in the tape recordings. In some cases, the removal of an increased mass on the vocal folds causes a rise in pitch. In others a strong functional element can be observed pre-operatively in the patients' dysphonia, the vocal fold lesion causing a strained voice quality with elevated pitch. After removal of the lesion by microlaryngoscopy, the patient may regain a more relaxed voice, with a resulting drop in pitch. This latter mechanism seems to pertain particularly for males. In our practice, objective measurements showing a return to normal pitch appropriate to the sex of the female patients, has shown to be a potent motivation factor for them to refrain from smoking. This seems a basic therapeutic rationale in the majority of laryngeal lesions. In single cases, however, a post-operative pitch rise signals compensatory strain which might jeopardize the outcome of surgery. This seems a strong indication for immediate referral to logopedic voice therapy including relaxation exercises.

CONCLUSIONS

1. Microlaryngoscopy generally seems a a quite simple and safe operation but a number of minor complications are not infrequent and in certain cases the operation may be very difficult to perform, mostly for reasons of adverse anatomy. To overcome these difficulties as well as to be able to make optimal use of the somewhat "technical" microlaryngoscopic instrumentation, the surgeon needs considerable training and experience, and cannot be expected to keep a sufficient level of skill if he lacks opportunities to operate frequently enough.

2. The two main indications for microlaryngoscopy, diagnostic and therapeutic, biopsy-taking and phonosurgery, should be kept clearly apart, and at least in the obviously non-malignant cases of phonosurgery the claim for documentation of vocal function by standardized tape recordings should be taken as seriously as the audiogram in surgery for hearing impairment.

3. From our experience there seems to be a substantial advantage in the laryngeal surgeon performing the phonosurgery being trained to rely on his own auditory evaluations of the pre- and postoperative voice qualities by aid of tape recordings. Only in this way he can get a personal experience of the effect of different surgical approaches on the resulting voice function. The same holds true for laryngeal stroboscopy, by which it is possible to evaluate the effect of organic lesions on the vibratory function of the vocal folds in order to plan the optimal extent of surgery. We highly recommend therefore the proper phoniatric training of laryngeal surgeons performing microlaryngoscopies for phonosurgery.

4. Measurements of voice pitch are of great advantage. However, they should not be used isolated and according to statistical standards of normality, but preferably for intra-individual comparisons in connection with controls after different kinds of therapy.

5. Except for the cases of vocal nodules, where the voice dysfunction is the cause of the organic lesion, only up to one fourth of our phonosurgical cases needed logopedic voice therapy. On the other hand, among the strictly organic lesion of epithelial dysplasia and laryngeal cancer there were found a substantial number of cases with "functional" dysphonias, who

could benefit from voice therapy. The correct distinction between the functional and organic components in a certain case of dysphonia is the cornerstone of the phoniatric investigation. This seems to be the best guarantee that the patient gets the most relevant and cost efficient treatment.

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SUMMARY

The present paper is an account of 704 microlaryngoscopies performed in connection with a phoniatric service. The ratio between males and females was about 5:2. The entire material can be divided into inflammatory and similar conditions (9%), cancer and precancerous lesions (44%) paresis and various infrequent diagnoses (8%), and benign lesions of the vocal folds (38%).

From the anamnestic data and examination results some points can be emphasized. Laryngeal cancer was observed in some cases even in the absence of hoarseness. In numerous cases of organic lesoins of the larynx, a component of compensatory « functional » hoarseness was also noted. In no cases of verified cancer were the stroboscopic findings normal (no « false negatives »), and the occurrence of invasive carcinoma is felt to be highly improbable if the stroboscopy is normal. Cases of vocal fold oedema (polypoid degeneration) were treated by abstinence from tobacco for three months, careful conservative surgery (not stripping) and, if needed, postsurgical voice therapy. Already after three weeks, in the majority of the cases the voice quality had improved.

Pre- and postsurgical measurements of voice pitch by « Glottal Frequency Analysis » (GFA) showèed a statistically significant lowered pitch in smoking males with (pre-)cancerous lesions an din smoking females with benign lesions, compared to the corresponding groups of non-smokers, respectively.

We conclude, that in undertaking endolaryngeal microsurgery, a careful distinction should be made when taking specimens suspect for cancer, and resecting obviously non-malignant lesions which interfer with voice function. In the later case, the aim of surgery should be not only to restore the appearance of the larynx but also to achieve an optimal voice function. The patient undergoing endolaryngeal microsurgery should always have a special phoniatric pre- and postoperative examination including a high quality tape recording for acoustic documentation. For a careful investigation of his voice.

A proper phoniatric training of laryngeal surgeons performing microlaryngoscopy for phonosurgery is recommended.

Key words: Phonosurgery; microlaryngoscopy; Phoniatric aspects.

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