

# Adverse symptoms and experiences after stapes surgery. What patients tell the Swedish quality register for otosclerosis surgery one year after surgery

Lars Lundman, MD PhD, Department of Otolaryngology, Central Hospital, Karlstad, Sweden



<https://oto.registercentrum.se/>



## Introduction

Otosclerosis surgery is in most cases very beneficial in terms of hearing improvement and improved quality of life [1]. Serious complications to otosclerosis surgery, such as severe tinnitus, severe dizziness and balance problems, as well as deafness do occur and is reported in the literature with frequencies of less than 0.5% [2,3].

The Swedish Quality Registry for Otosclerosis Surgery (SQROS) contains data from more than 4,000 operations reported by almost all surgical units (currently about 20). The register has a high degree of national completeness (90%) with follow-up registrations in 91% and patient-reported outcome measures (PROMs) in 70% of cases. Techniques and choice of prostheses as well as detailed statistics are described on the SQROS web-page.

Since 2013, SQROS has been systematically collecting PROM data regarding negative symptoms one year after surgery. The aim of this study is to describe and systematize these reported symptoms after primary surgery at a national level.

## Materials and methods

Data collection of surgeries performed before January 1, 2025, was performed during January 2026. The open-ended question from 2013 regarding negative symptoms was systematized and analyzed. A specific question from 2013 regarding hearing improvement was analyzed. Answers to specific questions regarding tinnitus and taste disturbances that were introduced later (Dec. 2024) are also presented.

## Results

A total of 3876 operations in 3292 patients could be retrieved. PROMs were available in 2703 cases, of which 2505 cases were primary surgery

In 525 primary cases the open-ended question "Do you have any adverse symptoms which you relate to surgery?" was answered with "Yes". The following explanatory responses are categorized in table 1.

The author is currently chairman of SQROS.

Contact information: [lars.lundman@regionvarmland.se](mailto:lars.lundman@regionvarmland.se)

The study was approved by the Swedish Ethical Review Authority, Sweden 2020-01058

Table 1. Reported new and adverse symptoms one year after surgery (open-ended question). Each case can have more than one symptom	Number	Proportion of those who affirmed new and adverse symptoms N=442*	Proportion of those who answered the questionnaire N=2505
Taste problems (corda symptoms)**	102	23.1%	4.1%
Disturbing sound quality (hyper-dysacusis)	69	15.6%	2.8%
Feeling of blockage/pressure/swelling	68	15.4%	2.7%
Vertigo/dizziness (unspecified)	56	12.7%	2.2%
Worse or bad hearing**	44	10.0%	1.8%
Vertigo from increased pressure	34	7.7%	1.4%
Pain in the ear	34	7.7%	1.4%
Crackling/click sounds from the ear	28	6.3%	1.1%
Sensation disturbance in the ear	25	5.7%	1.0%
Miscellaneous	19	4.3%	0.8%
Deafness	8	1.8%	0.3%
Non-healed eardrum	3	0.7%	0.1%
<b>Total</b>	<b>490</b>		<b>17.6%</b>

\*83 cases reporting worse tinnitus only were excluded. Frequency of tinnitus is explored in specific questions.

\*\*See also the results of the specific questions regarding hearing improvement and taste disturbance.

### Vertigo/Dizziness

In the open-ended responses, 3.6% described new dizziness symptoms, of which 1.4% were symptoms related to pressure changes (e.g. pressure on the ear canal/coughing/swallowing/chewing).

### Taste disturbance

In the open-ended responses, 4.1% described taste problems.

However, in December 2024 a more elaborate question was introduced - "During otosclerosis surgery, you sometimes have problems with altered taste sensation on the same side as the operation. Do you now, after the operation, have a residual altered taste sensation?" The question was affirmatively answered by 16.1% of the cases (48/298).

Current coworkers in SQROS are:

Ulrica Thunberg MD PhD  
Caterina Finizia MD Professor  
Andreas Björnsne Audiologist PhD  
Andreas Kaiser MD

## Other adverse symptoms

Other local symptoms from the ear are shown in table 1. Each symptom occurs with low frequency, but together in close to 10%. The most common problems described were ear discomfort and distorted sound quality.

## Tinnitus

Patient were asked specifically about tinnitus after surgery in two sets of questions.

From March 2016 to December 2024 the question was – Do you have tinnitus in the operated ear (Yes/No). If yes, compared to the situation before surgery is your tinnitus better, unchanged or worse/newly debuted. 184 out of 985 cases (7.3%) reported worse/newly debuted tinnitus.

From December 2024 the question was put differently to compare preoperative tinnitus with postoperative tinnitus. Thirty percent reported tinnitus improvement. Thirteen percent reported worse tinnitus (table 2).

In the open-end responses a total of six patients (0.2%) described their tinnitus as unbearable.

Table 2. Tinnitus, such as ringing or buzzing in the ear, is common among people who have had surgery for otosclerosis. How do you rate your tinnitus in the operated ear after the surgery compared to before? N=298	Proportion of responses
I did not have tinnitus in my ear before the surgery, and I do not have it now	30%
I had tinnitus in my ear before the surgery, but I no longer have it	8%
I have less tinnitus in my ear after the surgery	22%
My tinnitus in my ear is unchanged after the surgery	27%
I have more tinnitus in my ear after the surgery	13%

## Worse hearing and deafness

In the open-end responses, eight cases reported deafness (0.32%). In three of these cases, the hearing was not measurable (deaf ears). In three cases, the hearing level was between 80 and 105 dB. In two cases there was no follow up recording of the hearing level. When asked specifically about hearing improvement, 3.9% (98/2505) responded that hearing was worse or much worse in the operated ear.

In the entire registry, 0.2% of primary surgeries have non-measurable hearing at follow-up (7/3301, March 2026). The average preoperative hearing level in this group was 80 dB (58-123 dB).

## Disabling symptoms

In the open-ended responses twelve patients (0.44%) described their life situation after surgery as significantly worsened, mainly related to hearing loss, dizziness/balance difficulties, and unbearable tinnitus.

## Discussion and Conclusions

This study from SQROS shows that unwanted negative symptoms are common after primary otosclerosis surgery one year after surgery, although most of the symptoms are mild.

Approximately one out of 200 patients suffered from hearing, tinnitus and balance problems that negatively affected their quality of life after primary stapes surgery. These findings are consistent with previous research [4].

Taste disturbance is well studied in the literature and vary considerably [5]. In this study the more elaborate question yielded a higher proportion of taste problems as compared to the open-ended question, so this phenomenon must be followed in the register. The same phenomenon occurred most likely with the tinnitus questions.

This study, which spans more than a decade and includes thousands of patients from both high- and low-volume clinics, is the largest and most complete from a defined geographical area (Sweden), making the results robust and generalizable.

It is important that patients are unconditionally informed that long-term complications can occur after otosclerosis surgery, which in the worst case can significantly affect quality of life.

## References

- 1) Patient's perspective and change in quality of life after stapes surgery: A multicenter prospective trial. Jellema M et al. Otolaryngology - Head and Neck Surgery 2025 Sep;173(3):697-704.
- 2) Hearing outcomes and complications in stapes surgery for otosclerosis performed under general or local anesthesia. Luryi AL et al. Otolaryngology - Head and Neck Surgery 2021;165(1):157-62.
- 3) Patients' lives following stapedectomy complications. Guyot J, Sakbani K. Advances in oto-rhino-laryngology 2007;65:348-52.
- 4) Vertigo associated with otosclerosis and stapes surgery—a narrative review. Neclua V et al. Medicina (Lithuania) 2023;59(8):1458.
- 5) Subjective and objective taste change after stapes surgery systematic review and meta-analysis. Coelho D et al. Otolaryngology and Neurology 2023;44(1):10-5.