Patient case

Delayed speech development despite normal hearing tests



1 Patient

- Boy, 7 years old
- Newborn hearing screening: passed
- Language development: delayed, unclear speech
- Therapy: weekly speech therapy without sufficient success
- Suspicion: Mother and speech therapist suspect hearing impairment

"I was dismissed as a hysterical mother, with the explanation that language development is often slower in boys."

Mother

2 Diagnostic history

- Hearing tests conducted by four ENT specialists in private practice.
- Age-appropriate responses
- Consistently unremarkable test results

3 Child development

Kindergarten:

- Loud vocal behavior, social exclusion, social withdrawal

Elementary school:

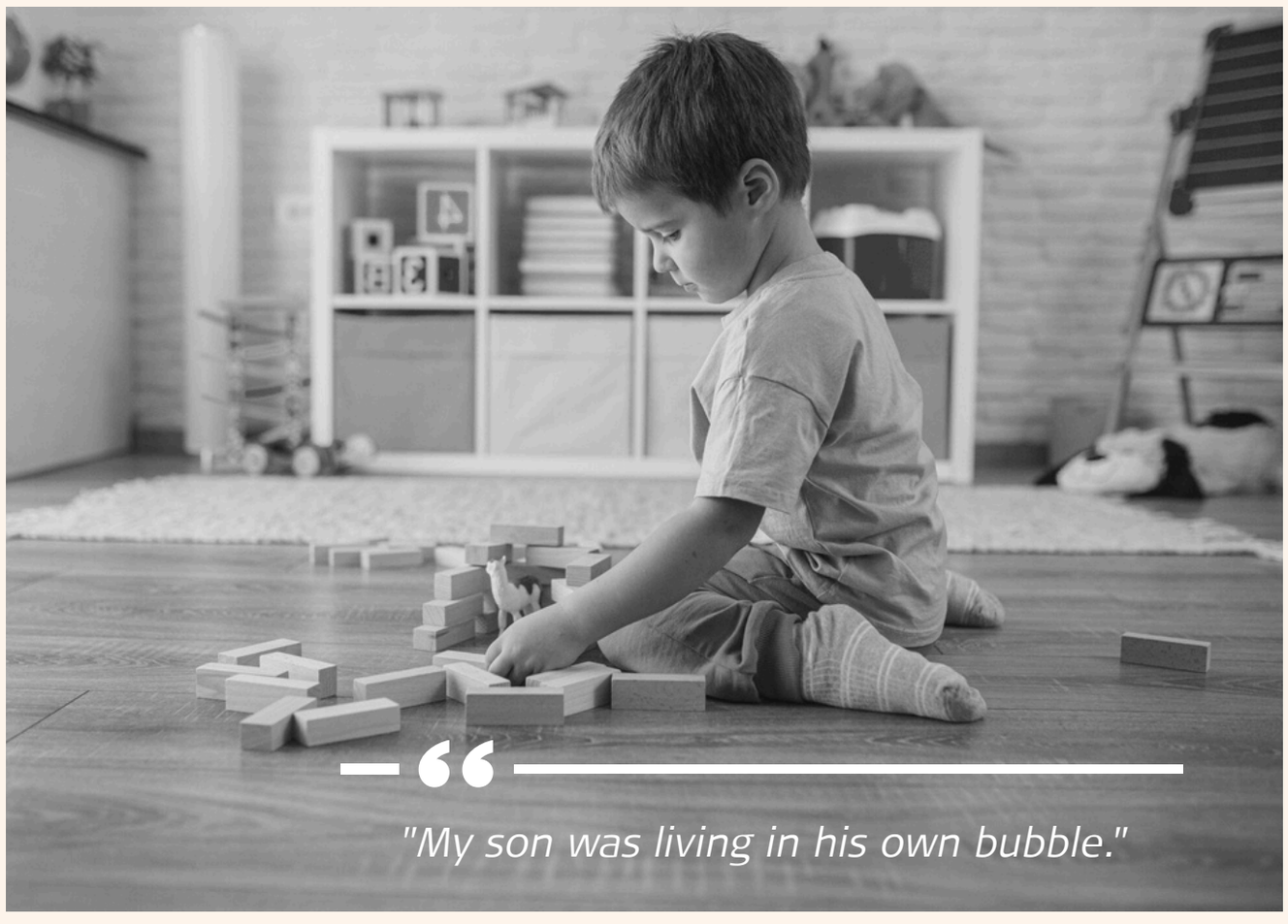
- Special education support for 4 hours/week, significant learning delay, very limited reading/writing skills
- Social exclusion from peers
- Limited understanding among teachers of child's loud vocal behaviour

4 Incidental finding

Listening to music together with new in-ear headphones

- Mother uses one earphone in right ear
- Child uses second earphone in left ear - cannot perceive any sound

→ Appointment at the ENT clinic



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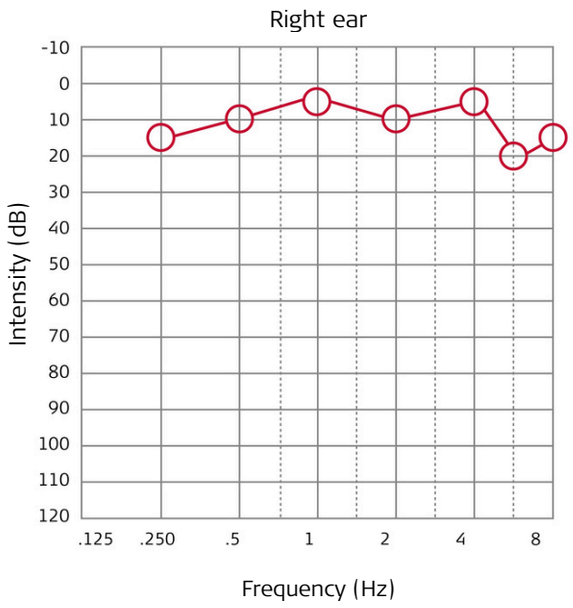
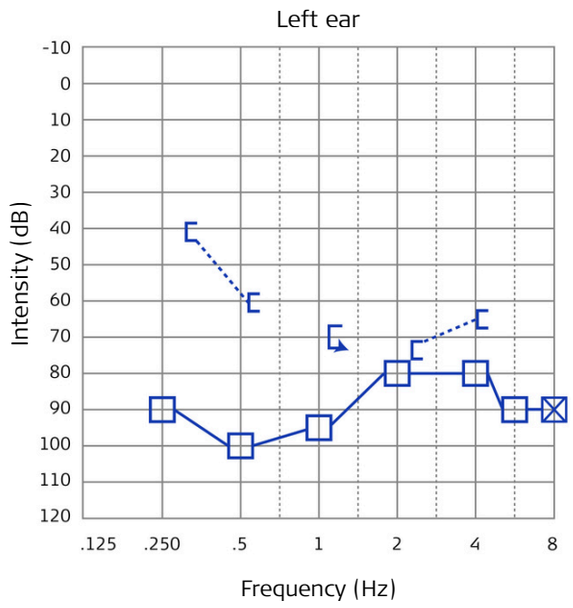
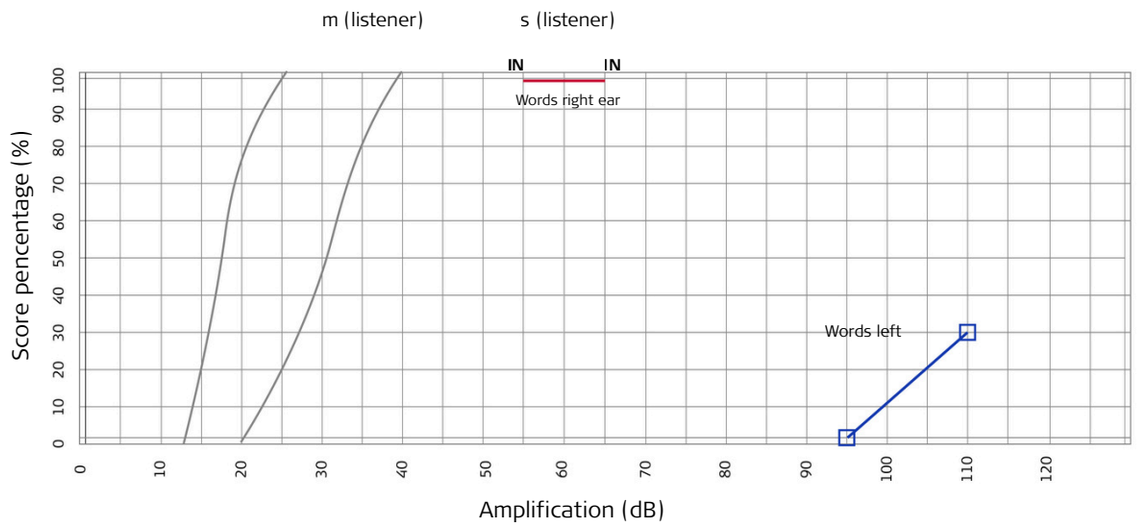
5 Preoperative audiogram / speech audiogram







6 Diagnosis

- BERA reveals severe hearing loss in left ear
- Single-sided deafness, presumably congenital, undetected in previous hearing assessments

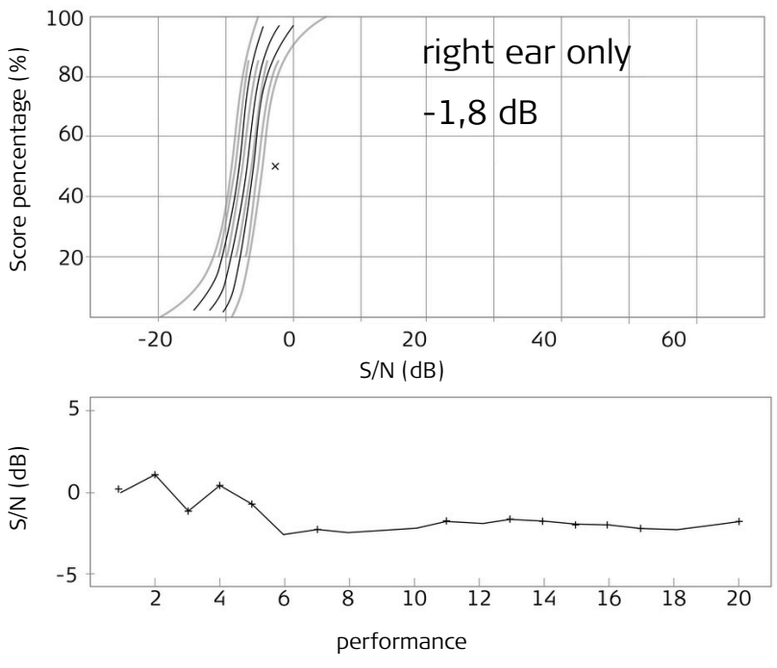
7 Treatment

- Cochlear implant in left ear

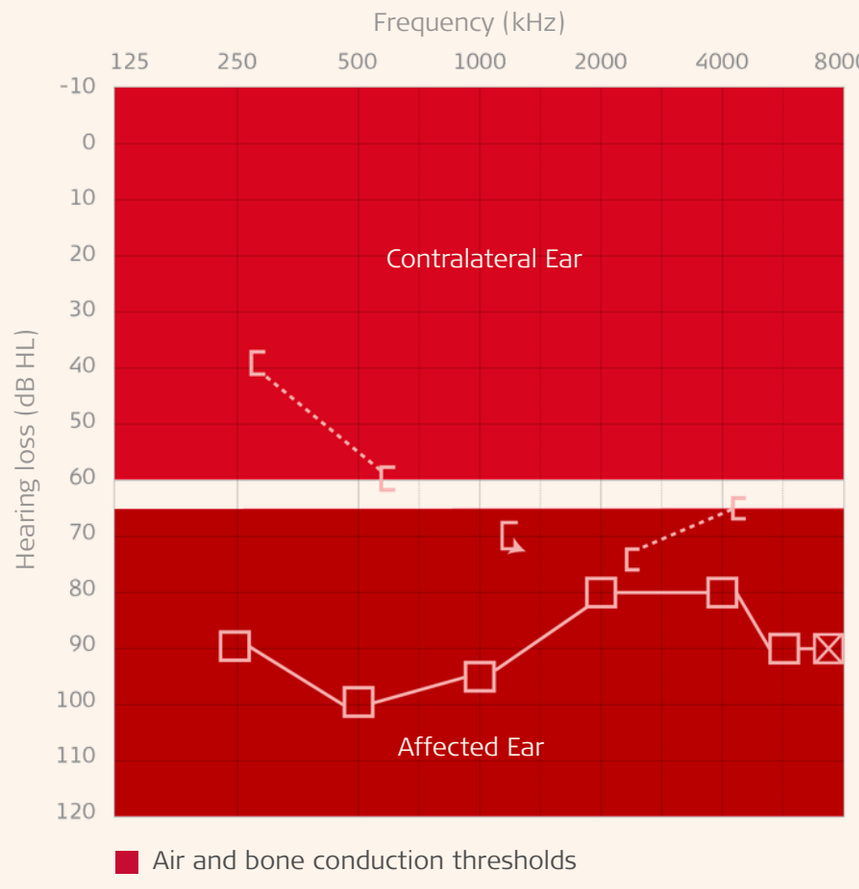
8 Hearing care

Cochlear implant fitted at age 8

Adaptive free-field measurement in background noise - OLSA (65 dB)
50% threshold, right ear only: -1.8 dB SNR
50% threshold CI left + ear right: -4.1 dB SNR
Significantly better speech understanding in noise with CI + normal hearing ear compared to SSD condition



Indication criteria for cochlear implants for Single Side Deafness (SSD)



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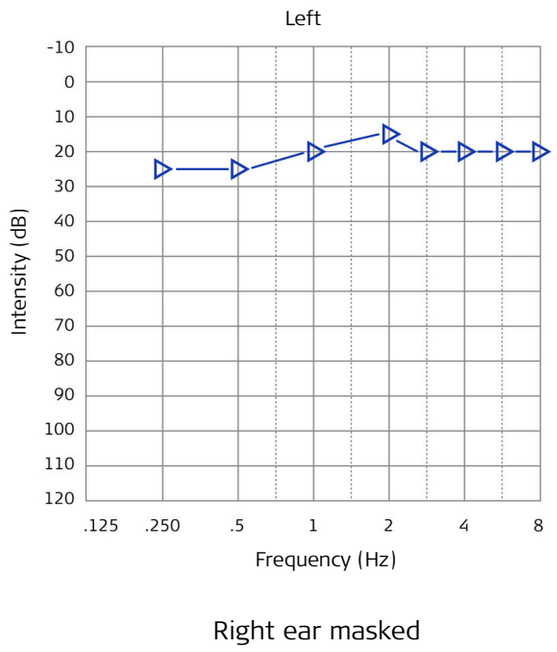
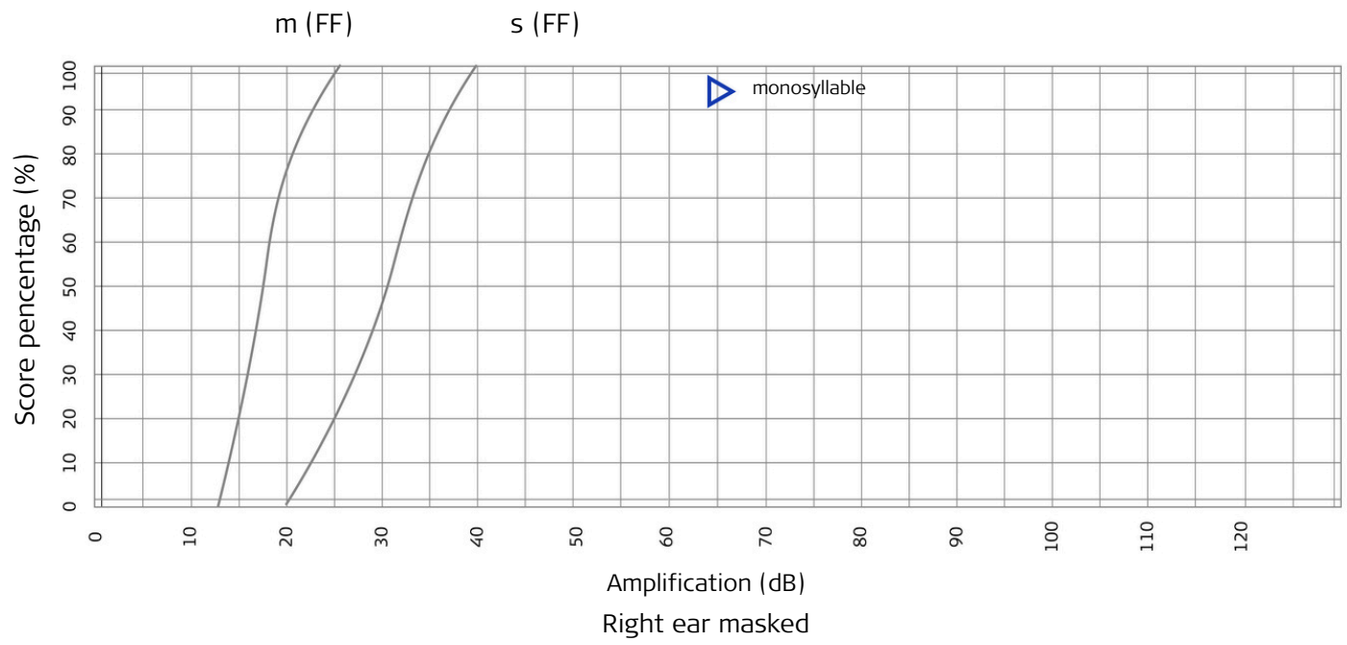
9 Pure-tone audiogram / Speech audiogram 9 years post-operatively





10 Key findings

- Hearing impairments can go undetected:
  SSD may go undetected despite newborn screenings and standard hearing tests
- Atypical language development:
  unserscores importance of ear-specific hearing assessment
- Early detection and intervention:
  Early diagnosis and referral to a cochlear implant center can help prevent delays in hearing, speech and language development.
- Improvements in quality of life:
  through comprehensive diagnostics and timely cochlear implantation

11 When to consider SSD and how to test

Area	Recommendation
Red flags	Poor speech intelligibility despite speech therapy; social isolation and loud vocal behaviour
Diagnostic	Ear-specific testing using headphones or inserts
Further steps	Detailed and objective hearing tests; if SSD is confirmed, referral to CI center.

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