Endoscopic Treatment of Choanal Atresia

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In order to report on differences in the endoscopic treatment of choanal atresia, data were gathered from responses obtained from a structured questionnaire send to several Belgian centers known for their expertise in endoscopic surgery. Four out of the 7 centers addressed participated to the study [1]. From 1979 to 2000 only 27 cases were reported by these 4 centers. Even the largest publication so far is dealing with only 78 patients [2]. This is probably a reflection of the very low prevalence of choanal atresia. According to a survey of 5 million people, the prevalence is below one choanal atresia in every 10,000 children being born [3].

In this present Belgian series, and in accordance with the larger series, 70% of the patients were female, and slightly more than half (56 %) of the subjects presented with bilateral atresias. Right and left sides were equally affected. Also in accordance with the more recent literature, no purely membranous atresias were noted. The atresias were most often combined bony-membranous or completely bony.

Fortunately the prevalence of choanal atresia is so low, particularly with respect to associated anomalies being frequently present. In our Belgian series, other anomalies were found in 37 % of the cases: subglottic stenosis (n= 2), polydactylia (n=1), psychomotor retardation (n=1), agenesia corpus callosum (n=1), malformed pinnae with micrognathia, microcephalia, atrioseptal defect, mental redardation and epilepsy (n=1), agenesia musculus orbicularis oris, atrioseptal defecct, psychomotor retardation and hypotonia (n=1), Treacher Colloins syndrome (n=1), CHARGE syndrome (n=2). CHARGE stands for Coloboma, Heart disease, Atresia of the choana, Retarded growth, Genital hypoplasia and Ear malformations. The CHARGE syndrome is probably of genetic origin [4]. Among the patients from our own institution, some other anomalies too seem to be inherited. A mother was operated at the age of 29 for a unilateral artresia, while her daughter was born with a bilateral atresia. This girl also presented with polydactylia, a trait she apparently inherited from her paternal grandmother. This girl is also one of those rare examples that show that some neonates are able to survive in spite of a bilateral choanal atresia. Nevertheless, due to an obvious failure to thrive, the patient was referred to our institution and was operated at the age of 9 weeks.

For the whole of the present series, 27 patients were submitted to 45 surgical procedures, which is just short of two procedures per patient. None of the patients was operated by a transpalatal approach, at least not in the 4 participating centers.

However, two patients had previously been operated by transpalatal surgery. Indirectly this indicates that even a transpalatal approach is not immune for restenosis. Most of the surgical procedures were totally endoscopic, the more recent ones being done with a microdebrider, one case with the CO_2 laser. At our own institution we prefer a combination of a microscopic transnasal drill out procedure with an endoscopic transoral control. This procedure was first introduced by. Clement et al., in 1985 [5]. By means of a micro-needle on a curved shaft, the thinnest portion of the artresia is first punctured. This portion is quite easily found, by looking for the transillumination from the endoscope placed in the nasopharynx. Simultaneously, by means of a 110-degree endoscope the other site of the artresia can be seen simultaneously on a monitor. After puncturing the atretic plate, the opening is widened with an otologic drill.

Postoperative stenting has become a controversial issue. In the present Belgian series no stenting was used in 10 out of 45 procedures. When used, stents were placed on average for three months. Personally, we adhere to the recommendations Friedman et al. [6], who paid a lot of attention on the outcome of surgery for choanal atresia correction. For unilateral atresia, stenting is less important. For bilateral atresia however, stenting for at least 3 months, with the largest possible tube is advised.

Of the 27 patients of the present series, only 22 were completely new cases. One came back after one year for a recurrence; three were lost for follow up. Only in 8 patients was one procedure sufficient. In the others, several procedures were needed. Several recent developments like computer-assisted surgery, microdebrider, laser, mitomycin C, all aim to reduce the number of revision procedures.

So, in conclusion, even with all the modern developments, there seems not to be one single procedure or approach that has proven to be superior to all the others. All pros and contras have to be weighted. An endoscopic approach is at least the most logical way to cure an atresia. On the other hand, the general shortcomings of endoscopy have to be addressed, especially considering the small space one has to operate within when dealing with newborns with bilateral atresia. So probably it all comes down to a proper selection of candidates. In theory endoscopy is very good for the thin atresia with an unimpeded access to both cavities, while in more complex conditions one of the older approaches might eventually be reconsidered.

References

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