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Endoscopy in diagnosis and treatment of choanal atresia

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It is well known that newborn infants cannot breathe through the mouth, and as the intranasal dimensions in such infants are very small, it is understandable that infection with oedematous mucosae and secretory stagnation constitutes a life-threating condition, especially during breast feeding. The same situation occurs in the presence of permanent nasal stenosis for example, in bilateral choanal atresia.

This anomaly may also be one of the explanations of many of the otherwise unexplainable sudden infant deaths. Experience shows that the nasal cavity and the nasopharynx represent a region which it is difficult to examine sufficiently in neonates, both during life and at autopsy, for which reason the examination of this region at autopsy is often omitted.

However, the diagnosis of congenital choanal atresia should not cause difficulties. Probing of both sides of the nose should be performed routinely immediately on birth. In order to avoid a troublesome postnatal period with tongue depressor, stomach tube and, possibly, tracheotomy until the infant has learnt mouth breathing at the fifth or sixth week of life we have used endoscopy for both the diagnose and treatment of congenital choanal atresia. The infants were operated on under endotracheal anaesthesia so as to have full control of respiration. The anaesthetics used were Halothane, nitrous oxide and oxygen given by an anaesthetist with wide experience in neonatal anaesthesia.

A 500-watt heating lamp is placed at a suitable distance from the naked patient, who is placed in the suspine position on the operating table. After intubation, a Hopkins nasopharyngoscope with 120-degree direction of view is introduced through the mouth into the pharynx. The nasopharynx and the choanal atresia can easily be inspected through the endoscope.

Still under endoscopic vision, a metal bougie, 4 mm in diameter, is inserted through one of the nostrils. The atresia is perforated under firm pressure. The direction of the bougie can be constantly observed.

The size of the bougie is increased up to 6 mm. This procedure is repeated on

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the other side. An elliptic hole is cut on the middle of a polyethylene tube of a suitable size, f.ex. of a inner diameter of 3 mm. This tube is then inserted through one of the nostrils and passed out through the mouth. In the same way, a rubber catheter of a slightly smaller calibre is inserted through the other nostril. The two oral ends are sutured together, and retrogradely the catheter and the polyethylene tube are pulled out of the other nostril, as described by others.

Under endoscopic vision, the hole in the tube is placed at the choanae. The two ends of the tube are trimmed and fixed in front of the columella with a silk thread passed through a thin silicone tube to prevent the thread cutting into the skin. The tube must not be drawn too tightly against the posterior border of the septum, because of the rapid growth of the infant during the first few months of life. The infant can now sleep with closed mouth. Breast or bottle feeding does not involve any problems. No antibiotics are given. The tube should be left in place for at least 3 months, or preferably longer.

After the removal of the tube, dilatation may, if necessary, be performed in the out-patient clinic at intervals of one to two weeks to prevent closure of the choanal openings by granulation or scar tissue. If this should happen, reinsertion of a tube under general anaesthesia can easily be done.

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