International Journal of Pediatric Otorhinolaryngology (2005) **69**, 407—410

International Journal of Pediatric Otorhinolaryngology

www.elsevier.com/locate/ijporl

CASE REPORT

Auricular seroma in a preterm infant as a severe complication of nasal continuous positive airway pressure (nCPAP)

Frank Eifinger[a,*], Ruth Lang-Roth[b], Matthias Woelfl[a], Angela Kribs[a], Bernhard Roth[a]

[a]*Children's Hospital, Department of Neonatology, University of Cologne, Joseph-Stelzmann Strasse 9, D-50923 Cologne, Germany*
[b]*Department of Otorhinolaryngology, University of Cologne, Joseph-Stelzmann Strasse 9, D-50923 Cologne, Germany*

Received 1 July 2004; received in revised form 11 October 2004; accepted 13 October 2004

KEYWORDS
Ear diseases;
Complications;
Infant;
Newborn;
Intensive Care Units;
Neonatal;
Neonatology;
NICU;
Respiration;
CPAP;
nCPAP;
Hematoma;
Seroma;
Ear;
Auricular

Summary Nasal continuous positive airway pressure (nCPAP) in preterm infants is closely linked to improvements in the primary management of respiratory failure. We report on a severe complication involving the external ear, which is usually covered by the fixing straps of the nCPAP application system. The very low birthweight infant (23 3/7 weeks' gestation) was treated with nCPAP for more than 2 months. At the age of 51 days, the child developed a fluctuating seroma of the right external ear. Applied surgical treatments including punctation and compression of the ear resulted in full recovery after 3 months. Due to shearing forces associated with straps used for attaching the nasal application system, the infant developed a severe auricular trauma. Ear trauma can be minimised by careful padding of these straps. Continuous monitoring of the nCPAP-system, including the straps, is required.

1. Introduction

Respiratory distress syndrom (RDS) in the newborn and preterm infant is widely treated with nasal continuous positive airway pressure (nCPAP, Fig. 1). Consequent therapy can avoid the need for mechanical ventilation [1]. Despite this advantage severe complications such as pneumothoraces, pneumopericardium, intestinal complications and nasal deformities, secondary to the nares-occluding prongs, become more frequent [1—6]. We report the first case, to our knowledge, of a preterm infant with biauricular seroma due to the attachment straps.

* Corresponding author.
E-mail address: frank.eifinger@t-online.de (F. Eifinger).

0165-5876/$ — see front matter
doi:10.1016/j.ijporl.2004.10.011

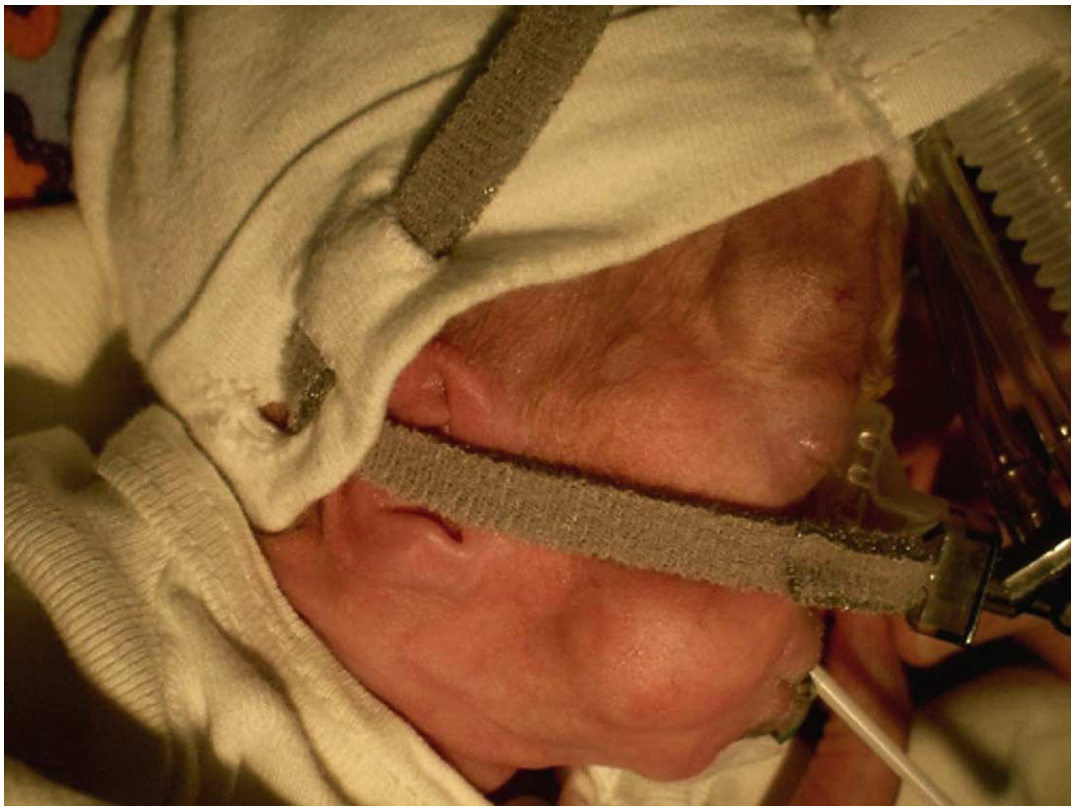

Fig. 1 The straps are attached to the bonnet around the forehead without padding. Care must be taken to avoid extreme pressure. Ear trauma can be minimised by careful padding of the attachment straps (not the child in this report).

2. Case report

A very low-birthweight male infant was admitted to the neonatal intensive care unit due to his extreme prematurity at a gestational age of 23 3/7 weeks. The birth weight was 600 g and APGAR score 3/7/8. After a single endotracheal application of surfactant (Survanta™, 100 mg/kg b.w., Abbott Ltd., Wiesbaden, Germany), the respiratory situation could be stabilised with nasal continuous positive airway pressure, using nasal prongs connected to the Infant-Flow™ (e.m.e. Ltd., Birmingham, England, Fig. 1). The preterm infant gradually gained weight, but was still dependent on additional oxygen (30%) and nCPAP for the whole time. At the age of 51 days, the child developed, within 24 h, a swelling of the right external ear, located between helix and cavum conchae (Fig. 2). A similar, but less distinct swelling occurred on the left cavum conchae. Although the straps were replaced immediately and well padded, the swelling increased and showed a livid color. Sterile puncture of the intumescence was performed with a small needle, without local anaesthesia but with systemic analgesia (piritramid 0.05 mg/kg b.w.) and 5 ml of yellowish, serous liquid were aspirated. Unfortunately, the consistency of the puncture fluid was not investigated. Cultures of the aspirate remained sterile. However, the seroma recurred after 2 days and a second puncture was necessary. Modelling of the outer ear under slight compression was performed with hydrocolloid bandages (Varihesive™, E.R. Squibb & Sons, ConvaTec). Systemic antibiotics (sultamicillin) were administered intravenously for 2 weeks to prevent bacterial infection. After 5 days the swelling diminished with a small residual compaction on the right ear. During follow-up a remarkable hyperaesthesia of the right ear was observed, but disappeared completely with full recovery of the outer ear after 3 months (Fig. 3).

3. Discussion

The use of nCPAP systems for the management of respiratory failure in very small preterm infants has greatly improved the outcome of these children. The incidence of chronic lung disease could be reduced to less than 5% in infants weighing less than 1500 g [1]. The use of our nasal CPAP-system (Infant-Flow™) involves the application of the generator with short prongs or bonnets of different sizes to the nose of the infant. To keep this system in place,