Airway management of a massive neonatal cervical teratoma: Case report and review

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Declaration

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Abstract

Congenital cervical teratomas are rare tumours notorious for causing neonatal airway embarrassment. We report the multidisciplinary management of a foetus with an antenatally diagnosed massive cervical teratoma. Initial management with an ex-utero intrapartum treatment (EXIT) procedure failed. The neonate was delivered and airway control was then achieved using a supraglottic airway device. Tracheal intubation was eventually accomplished using fibreoptic bronchoscopy via the supraglottic airway. The discussion addresses perinatal cervical teratoma with the emphasis on airway management and the use of supraglottic airway devices.

Opsomming

Kongenitale servikale teratome is raar tumore wat bekend daarvoor om neonatale lugweg probleme te veroorsaak. In hierdie gevallestudie bespreek ons die multidissiplinêre hantering van 'n fetus met ‘n massiewe servikale teratoom waarvan die diagnose prenataal gemaak is. Aanvanklike hantering deur middel van ‘n "ex-utero intrapartum treatment" (EXIT) prosedure het gefaal. Na abdominale verlossing is lugweg beheer verkry deur gebruik te maak van ‘n supraglottiese apparaat. Trageale intubasie is na veelvuldige pogings suksesvol uitgevoer met behulp van ‘n veseloptiese brongoskoop deur die supraglottiese lugweg. Die gebruik van supraglottiese lugweë in die lugweghantering van ‘n perinatale servikale teratoom word bespreek.

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Case Study

A 29-year-old, otherwise well primigravida was referred to our institution's Foetal Medicine Unit due to severe polyhydramnios and preterm labour. The initial foetal ultrasounds revealed a 31-week, singleton pregnancy with a large cystic facial mass, severe polyhydramnios and an anterior placenta. The mass, measuring 145 X 116 X 123 mm, extended from below the left orbit to the thoracic inlet; it resulted in fixed extension of the foetal head and did not cover the mouth. Ultrasound imaging indicated both laryngeal and tracheal compression, but no intrathoracic extension. The mass consisted of equally divided cystic and solid components. Colour doppler interrogation revealed the cystic component to be predominantly large blood vessels. The vascularity contributed to foetal cardiomegaly and a small pericardial effusion. There was no evidence of cardiac failure, ascites or pleural effusions. A magnetic resonance imaging scan (Figure 1) further revealed complete attenuation of the airway up to the level of the thoracic inlet and absence of the middle ramus of the left mandible.

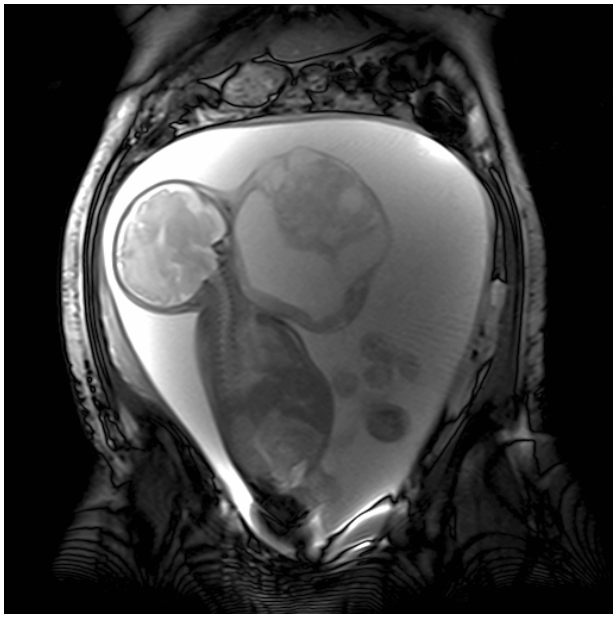

Figure 1. Magnetic resonance image demonstrating extension of the foetal head by the cystic mass and extensive polyhydramnios.

Four days after admission, ultrasonography revealed an estimated foetal weight of 1.63 kg, with worsening polyhydramnios, foetal cardiomegaly, deterioration of myocardial performance index, and concern about amnion-chorion separation. These observations prompted urgent intervention. The parents were kept informed of the risks and benefits of the possible management options. With the support of a multidisciplinary team (radiography, obstetrics, neonatology, paediatric pulmonology, anaesthesia, and paediatric surgery), they decided on active management and thus the preparations for an elective caesarean section began.

The multidisciplinary team discussed and agreed upon the safest strategies for delivery, establishing an airway and the progression to neonatal surgery. The possibility of performing either ex utero intrapartum treatment (EXIT) or Operation On Placental Support (OOPS) was explored.

Attending physicians were allocated specific responsibilities. A team of two anaesthesiologists cared for the mother, whilst a separate team of three anaesthesiologists was dedicated to the neonate. An experienced neonatal intensivist, not directly involved in management, was appointed as team leader and timekeeper, and had the responsibility to halt therapy if considered futile. A large, temperature controlled operating room capable of accommodating all personnel, individual operating tables, each with its own gas outlets, anaesthesia machines, monitors and equipment was selected.

Prior to induction of anaesthesia, the possibility of maternal haemorrhage prompted placement of a large bore peripheral cannula, a central venous catheter, and invasive blood pressure monitoring. Banked blood for both mother and infant was made available in the operating room. In preparation for an EXIT procedure, a scrubbed anaesthesiologist with sterile airway equipment (laryngoscope and various blades, supraglottic airway devices, endotracheal tubes, and self-inflating resuscitation bag attached to an oxygen source) was present during the caesarean section. The caesarean section was performed under general anaesthesia using isoflurane 1.0 kPa end tidal partial pressure in 100% oxygen.

A spontaneously breathing foetus was delivered. Umbilical cord pulsations were weak, and the extent of the uterine incision to deliver the foetal head made us abandon an EXIT procedure and the umbilical cord was clamped. Ventilatory assistance was commenced using gentle facemask ventilation. The child was transferred to an adjacent operating table designed to facilitate full access to the infant. Two anaesthesiologists positioned at the child's head attended solely to bag-mask ventilation with 100% oxygen from a circle system attached to an anaesthesia machine. Optimal facemask ventilation was achieved by placing sterile green towels beneath the infant's chest. Pre and post ductal oxygen saturation probes, a non-invasive blood pressure cuff, and a rectal temperature probe were placed while intravenous access was secured. Apgar scores were 6/10 at both 1 and 5 minutes post delivery. A single episode of hypoxia (pulse oximetry saturations of 37%) accompanied by a bradycardia (60 beats per minute) and blood pressure 75/43 mm Hg occurred and was resolved by optimising facemask ventilation and intravenous administration of previously prepared atropine 0.1 mg and adrenaline 1 μg. Ongoing difficulty with facemask ventilation lead to a decision to place a size 1 air-Q® supraglottic airway (Cookgas®, Missouri, USA) under sevoflurane anaesthesia (1 kPa end tidal partial pressure).

The supraglottic airway provided excellent airway patency and ventilation, despite having several preconceived laryngoscopy and intubation strategies (rigid bronchoscopes, indirect video laryngoscopes, intubating stylets and endotracheal tubes). Flexible fibreoptic tracheal intubation via the supraglottic airway was therefore initiated.

Pre-operatively the initial plan was to load a 150 cm long guide wire into the working channel of the 2.8mm fiberscope and pass it into the trachea. This would be followed by railroading an 8 French gauge, 45 cm long, airway exchange catheter (Cook Medical®, Indiana, USA) over the guide wire and this followed by railroading an endotracheal tube over the airway exchange catheter.

The backup plan was to directly railroad an endotracheal tube over a fibreoptic scope that had been introduced into the trachea.

The anaesthesiologists involved were conversant with both procedures. One anaesthesiologist was dedicated to manual ventilation via the supraglottic airway and another to the monitoring of vital signs. A 2.8 mm fibreoptic bronchoscope was introduced through a Rusch Mainz Universal Adaptor fitted with a silicone 2 mm internal diameter sealing cap (Teleflex Incorporated, Pennsylvania, USA) attached to the supraglottic airway (Figure 2) (Figure 3). This enabled controlled identification of the distorted laryngeal inlet, albeit with difficulty. Due to the distortion, multiple attempts to introduce the fibrescope or guidewire into the trachea proved futile.

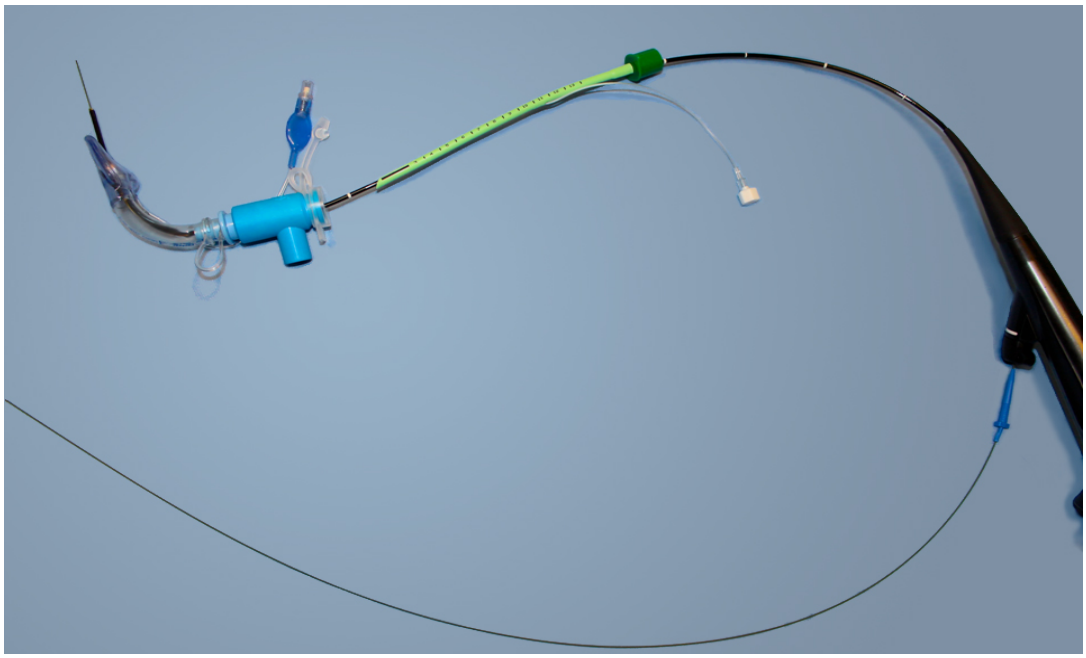

Figure 2. Size 1 air-Q® supraglottic airway (Cookgas®, Missouri, USA) with Mainz universal adaptor stabilising an endotracheal tube threaded over a fibreoptic bronchoscope. Guidewire loaded into the suction channel of the fibreoptic bronchoscope telescoping through the supraglottic airway device.

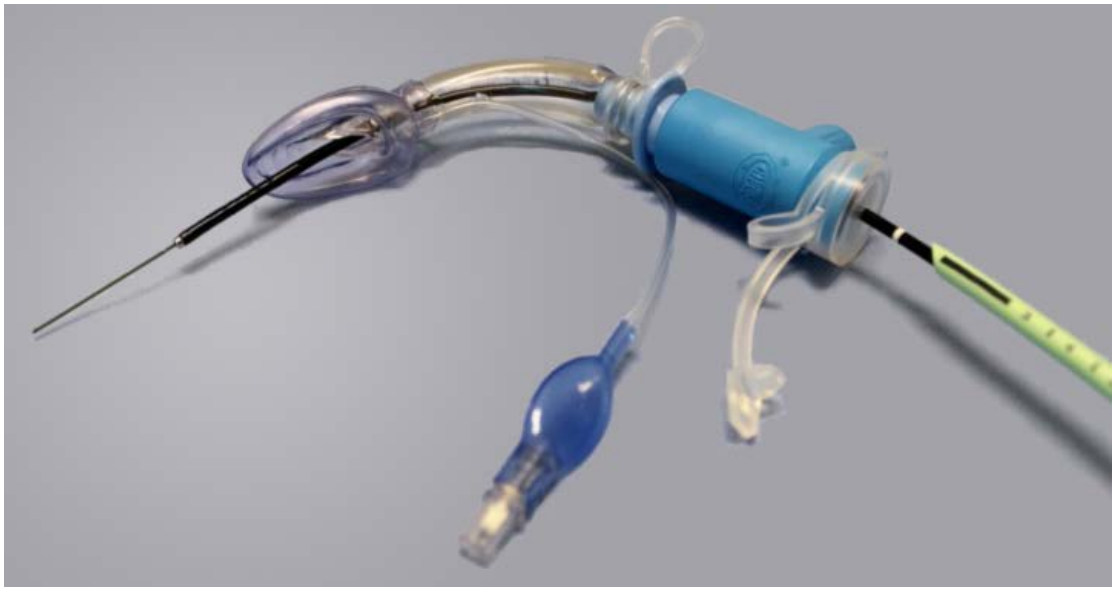

Figure 3. Detailed view of Figure 2.

Intraoperatively a smaller, 2.2 mm outer diameter bronchoscope was introduced into the trachea and a preloaded Vygon® 2.5 mm inner diameter endotracheal tube proved successful. The supraglottic airway, with cuff deflated, was left in situ to avoid endotracheal tube dislodgement (Figure 4).

Figure 4. Neonate, 2 hours after birth, with 2.5 mm inner diameter endotracheal tube in situ via the supraglottic airway. The vascularity of the mass is visible through the skin. [Written consent was obtained from the parents to publish these photographs.]

The stressful and challenging intubation took approximately 120 minutes and included a potentially serious misunderstanding. This occurred when the fibreoptic bronchoscope was introduced into the trachea and an attempt was made to railroad the endotracheal tube. The operator withdrew the bronchoscope, despondently stating, “It’s too short”. The other physician immediately removed the endotracheal tube to facilitate continued ventilation as gas was escaping from the Mainz connector having made ventilation ineffective during the intubation attempt. The first physician had not meant that the tube did not reach the larynx but that the endotracheal tube was too short, the tip was already located just within the glottis. This demonstrates the significance of effective communication in these crucial situations.

With the exception of the aforementioned episode of desaturation, vital signs were stable throughout, blood pressure, heart rate and oxygen saturation averaging 50/30mmHg, 140 beats per minute, and 94% respectively. Maintenance fluid was 10% Neonatalyte® (Sabax, Adcock Ingram, South Africa) at 4.5 ml/hr with a cumulative 100 ml bolus of colloid (Voluven®, Fresenius Kabi, Port Elizabeth, South Africa). Inotropic support with a dobutamine infusion (maximum rate of 3ug/kg/minute) maintained adequate perfusion.

After achieving a definitive airway, the teams decided to proceed to immediate surgical excision. For this purpose, a left radial intra-arterial catheter and two 24-gauge peripheral venous catheters were sited. The tumour was significantly vascular, ensuring that the 240-minute resection was accompanied by a massive transfusion comprising 1100 ml packed red cells. Coagulopathy treatment was guided by thromboelastography and a transfusion of 100 ml fresh frozen plasma, 80 ml platelets and 25 ml cryoprecipitate (Figure 5).

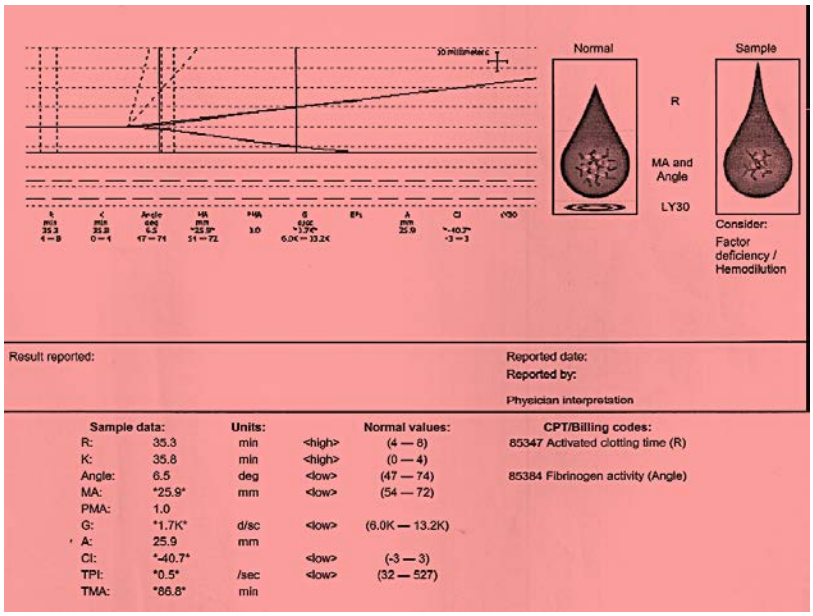

Figure 5. Kaolin activated thromboelastogram: severely prolonged Reaction and Kinetic times (R-time and K-time) and a significantly reduced Maximum Amplitude (MA).

The supraglottic airway device was gingerly removed after surgery. A fibreoptic bronchoscope was first passed down the supraglottic airway, alongside the endotracheal tube. The fibrescope ensured visualisation of the endotracheal tube and that it did not move during withdrawal of the supraglottic airway. The endotracheal tube was sutured to the corner of the child's mouth (Figure 6) and the ventilated, stable child was transported to the neonatal intensive care unit. One week later he was electively extubated in the operating room with all airway precautions readily at hand. At that time, fibreoptic inspection revealed only slight swelling of the upper airway, epiglottis, aryepiglottic folds and vocal cords.

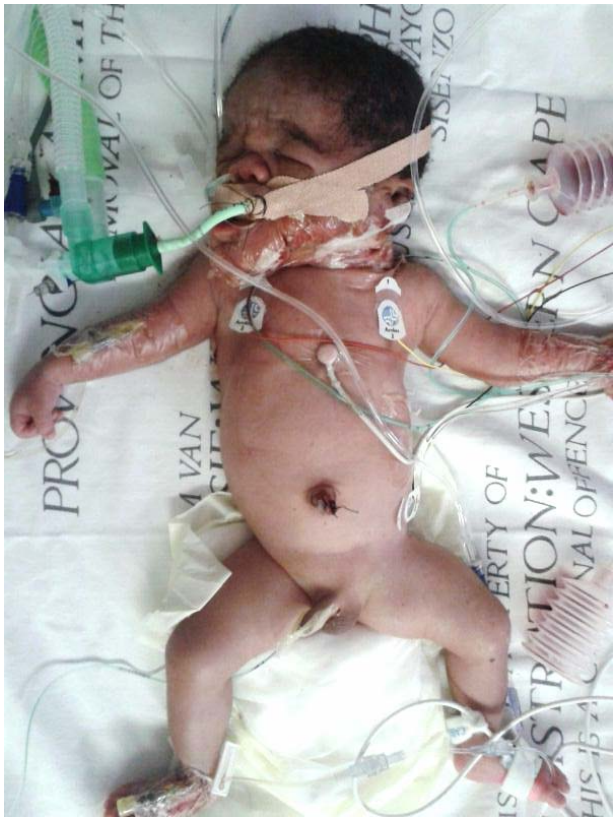

Figure 6. The child, after resection of the teratoma. The supraglottic airway has been removed, and the endotracheal tube has been secured with sutures.

Discussion

Overview of cervical teratoma considerations with emphasis on airway pathology

Congenital cervical teratomas are rare tumours, occurring in 1/20 000 to 1/40 000 live births.[1-8] They arise from either pluripotent (ectodermal, mesodermal, and endodermal) germ cells or ectopic embryonic non-germ cells.[5, 7, 9-16] Teratomas typically present as unilateral, irregular tumours in the sacrococcygeal region, or in ovaries and testes. [1, 6, 7, 8, 16] Only 3 to 8% of all teratomas originate in the head and neck.[3, 5, 6, 10, 17, 18] Histologically, teratomas contain both cystic and solid components,[7, 16] the presence of calcifications being pathognomonic of the diagnosis.[5, 9, 19-23] As in this case, they can be extremely vascular. Untreated, the associated mortality of cervical teratomas approaches 80-100%,[1, 5, 7, 9, 22] primarily due to airway obstruction.[3, 4, 14, 17, 24] Successful resection improves survival due to relief of airway obstruction.[7, 8, 16, 17, 22, 25, 26] Resection of these encapsulated benign tumours also removes the small(5%) risk of malignant transformation later in life. [1, 3, 4, 7, 9, 10, 15-17, 19, 22, 27, 28]

Cervical teratomas may cause multiple non-airway related, local and systemic effects.[16, 29-31](Table 1)

Cervical Teratomas are associated with:
Extensive vascularity
Foetal airway obstruction
Pulmonary hypoplasia
Hydrops foetalis
Cardiomegaly and cardiac failure
Associated congenital anomalies
Polyhydramnios due to impaired foetal swallowing

Table 1. Anaesthetic considerations with cervical teratomas.

The first warning sign is often polyhydramnios, resulting from impaired foetal swallowing or oesophageal obstruction.[3, 5, 16, 22, 32] The severity of the potentially lethal airway complications are a function of the size and location of the neck mass.[34] Teratomas can involve multiple airway structures including the nasopharynx, palate, tongue, floor of the mouth, and/or thyrocervical structures.[21, 35-37] Intrathoracic extension may cause tracheal deviation and compression.[5] Nasopharyngeal teratomas usually present at birth with respiratory distress, as neonates are obligate nasal breathers.[27] Anatomical distortion may make facemask ventilation difficult or impossible, the former occurring in our case. Upper airway distortion by the mass may impair laryngeal visualisation using direct rigid laryngoscopy.[9] Enlarging tongue masses may present later in life as epignathus.

Hypoxia due to upper airway problems may be aggravated by concomitant pulmonary hypoplasia due to airway obstruction or pulmonary compression.[38] Severe pulmonary hypoplasia is often incompatible with long-term survival.[14] Hydrops foetalis, fluid accumulation within the foetal extravascular compartments and body cavities, is thought to develop due to pulmonary hyperexpansion and impaired

venous return.[39] High cardiac output failure due to the vascularity of the tumour may also contribute to hydrops foetalis.[1]

Approach to the airway in massive cervical teratoma

Prior to delivery, all appropriate imaging (ultrasound and magnetic resonance) should be employed to define the foetal airway and help guide definitive airway management. [1, 3, 6, 7, 8, 9, 14, 15, 21, 32, 40, 41, 42, 43] Airway issues in neonatal cervical teratomas should be considered under three headings:

1. **Maintaining adequate oxygenation after birth:** The initial focus is to avoid hypoxic damage. Options here include conventional methods of establishing a patent airway. Spontaneous or positive pressure ventilation may ensure adequate alveolar oxygen tensions; or preservation of uteroplacental blood flow may maintain foetal oxygenation and buy time to establish an airway via rigid or flexible bronchoscopy, or perhaps tracheostomy.
2. **Visualising the larynx:** If rigid laryngoscopy is not successful, indirect videolaryngoscopy, rigid, or flexible bronchoscopy may be required to facilitate laryngeal visualisation.
3. **Endotracheal intubation or tracheostomy to ensure a definitive airway.**

Adequate oxygenation after birth: to establish and maintain airway patency

Basic airway manoeuvres and facemask ventilation proved feasible and useful in this neonate. These basic techniques should not be forgotten, albeit difficult to achieve or maintain with a large facial mass.

Following cord clamping, placement of a supraglottic airway device simplified reliable ventilation and oxygenation and allowed prolonged intubation attempts. Supraglottic airways are familiar, inexpensive and well-established devices in paediatric anaesthesia and neonatal resuscitation.[44-47]They are pivotal in the American Society of Anaesthesiologists and British Difficult Airway Society recommendations.[48, 49]Supraglottic airways have proven useful in paediatric[50-52] and neonatal difficult airway scenarios such as cervical teratoma, lymphangioma, epignathus tumour, craniofacial dysmorphisms,[53-56] Pierre Robin Sequence, Beckwith Wiedeman, congenital high airway obstruction (CHAOS), and Down's syndrome.[45, 50, 57, 58] They are soft, do not readily traumatise the adjacent tissue, do not take up much room before inflation, but invariably establish airway patency with inflation assertively pushing the soft tissue aside. [45]

If it forms an effective perilaryngeal seal, a supraglottic airway device can permit ventilation for a considerable time. Successful supraglottic airway placement shifts the scenario out of the "Emergency" section of the American Society of Anaesthesiologist's Difficult Airway Algorithm,[49] reduces the potential for airway trauma and allows time (as in this case) for definitive airway planning or management. It may even be effective enough to allow transport to a hospital with the appropriate experience, personnel and equipment.[56]

Supraglottic airway devices can, however, cause complications. Repeated insertion potentially inflicting airway trauma. Cuff hyperinflation, defined as pressures exceeding 60 cm H_20, occurs frequently in children due to the smaller device and proportionately smaller airway. These high pressures impair mucosal perfusion and aggravate pharyngeal-laryngeal morbidity. The device may not prevent tracheal aspiration of acidic gastric contents or blood and its consequences. Large perilaryngeal leaks are associated with suboptimal tidal volumes and gastric insufflation.[59, 60] The most serious complication is the failure to maintain airway patency or a perilaryngeal seal with suboptimal maintenance of alveolar and thus arterial oxygen tension. Even a good perilaryngeal seal may provide insufficient ventilatory volumes or inadequate positive end-expiratory pressure with neonatal restrictive lung disease. Creating a better perilaryngeal seal may require trial and error readjustment of the device. This could involve an up-down manoeuvre (device moved cephalad and caudad in the airway), the Chandy manoeuvre (twisting the device left or right to optimise ventilation and facilitate intubation), trying different sizes or types of device, and/or inflating or deflating the cuff to different pressures.[61] Cuff hyperinflation may impede perilaryngeal seal formation, partial deflation in the neonate often allowing better cuff moulding. While a guide inserted via the oesophageal access-drainage port may facilitate placement, this manoeuvre has its own potential traumatic complications.

Adequate oxygenation after birth: EXIT-OOPS procedure

Ex utero intrapartum treatment (EXIT), originally termed Operation On Placental Support (OOPS), has been used to buy time to establish a foetal airway in various prenatally diagnosed causes of upper airway obstruction, including cervical teratoma.[1, 4, 8, 9, 16, 22, 24, 26, 35, 62-66] EXIT involves a hysterotomy and delivery of the foetal head, neck and an arm with the aim of maintaining maternal-foetal circulation while the foetal airway is secured.[7, 15] OOPS differs from EXIT in that the entire foetus and umbilical cord are delivered.[14] In cervical teratoma with airway obstruction, EXIT-OOPS procedures have markedly improved survival rates.[21, 67] While we retained EXIT-OOPS as our first airway management option, taking the magnitude of the mass into account, we predicted its failure. To prevent placental detachment during EXIT-OOPS, amniotic fluid volume needs to be maintained.[42, 68] In our case, severe polyhydramnios, the anterior placenta, and the large uterine incision that was needed to deliver the foetal head all pointed to the likelihood of rapid placental detachment following uterine incision. Prenatally removing controlled amounts of amniotic fluid may delay placental detachment.[32, 42]

Albeit an attractive option, securing a foetal airway during EXIT may be very difficult due to the size of the tumour and the severity of upper airway distortion. Therefore, despite its frequent usefulness, EXIT is not a panacea for all cervical teratomas.[35, 69]

Definitive airway management: Visualisation of the larynx and tracheal intubation

The 2003 American Society of Anaesthesiologists Difficult Airway Algorithm intubation options[70] such as the use of a light wand, retrograde, and/or any form of surgical airway or cricothyrotomy would obviously have been poor choices in this child. Blind oral or nasal intubation, or even tactile intubation can be useful. (Table 2)

Alternative non-invasive approaches to difficult intubation include(but are not limited to):

1. Use of different laryngoscope blades or videolaryngoscopy
2. LMA as an intubation conduit
3. LMA as an intubation conduit with fibreoptic guidance
4. Fibreoptic intubation
5. Intubating stylet or tube exchanger
6. Light wand
7. Blind oral or nasal intubation

Table 2. Non-invasive options to approach the paediatric difficult intubation.

In this case, direct laryngoscopy was unlikely to create the straight line of vision needed to visualize the laryngeal inlet. Visualisation during direct laryngoscopy has been improved by manual tumour displacement or needle decompression of cystic components of the tumour.[14] Needle decompression is not appropriate in a significantly vascular tumour. One reason we didn't attempt direct laryngoscopy was to avoid airway trauma with swelling and/or bleeding, which could have aggravated an already difficult scenario. In the truly difficult airway, each individual airway instrumentation attempt needs careful consideration. An added difficulty in this particular child was potential damage to the marked tumour vessels. Despite our concerns, we would have performed direct or video-laryngoscopy if all other approaches had failed. Indeed, videolaryngoscopy is a viable key strategy in these patients.[72, 73]

Supraglottic devices can act as blind tracheal intubation conduits,[50-55] a 3 mm outer diameter endotracheal tube passing easily through a size 1 Classic reusable Laryngeal mask airway® (Teleflex, Pennsylvania, USA). Blind advancement is not a reliable technique, may cause trauma and should only be considered if a fibrescope is not available.[46, 52]

Fibreoptic guided tracheal intubation via a supraglottic airway is a well-recognised technique in managing the difficult paediatric airway. When using size 1, and size 1,5 and larger supraglottic airways, the glottis can be visualized in 50% and 75% of cases respectively.[46, 47] Fibreoptic guided tracheal intubation via a supraglottic airway provides greater intubation success than the blind technique, as supraglottic airway devices frequently cause caudal displacement of the paediatric epiglottis.[45, 46, 74-76] Fibreoptic tracheal intubation via a supraglottic airway device may be achieved

using a variety of techniques. The preferred technique is to railroad the tracheal tube over a fibrescope that has been introduced into the trachea (Figure 7)(Figure 8).

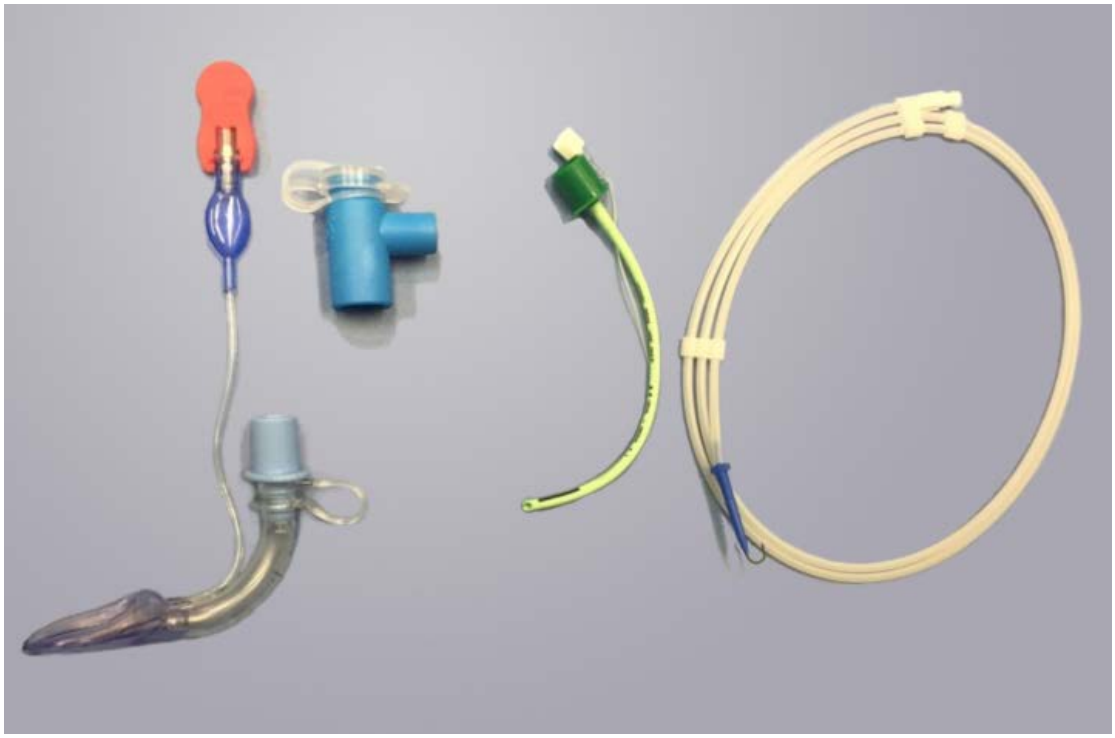

Figure 7. Size 1 air-Q® supraglottic airway (Cookgas®, Missouri, USA); Rusch Mainz Universal Adapter; Vygon® 2.5 mm inner diameter endotracheal tube; 150 cm long guide wire.

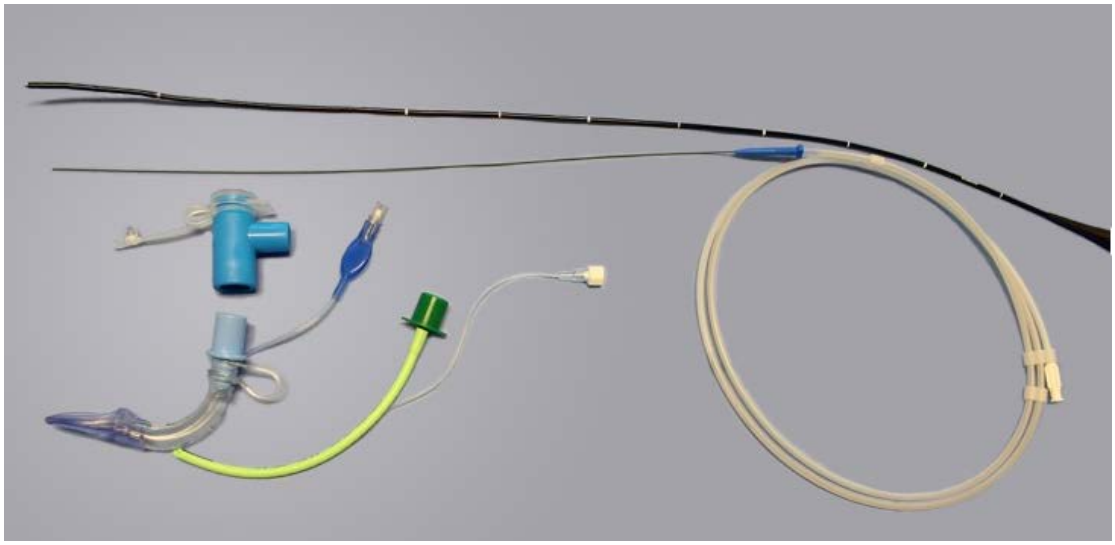

Figure 8. Equipment to intubate via supraglottic airway devices. Fibreoptic bronchoscope; soft-tipped guidewire; size 1 air-Q® supraglottic airway (Cookgas®, Missouri, USA); Mainz universal connector; Vygon® "soft" paediatric endotracheal tube.

Alternatively, a sufficiently long guide wire can be introduced into the trachea via the suction or working channel of the paediatric fibrescope.[50] Only paediatric fibrescopes with an outer diameter of 2.8 to 4 mm or greater usually have a working channel.[46] Ultra-thin bronchoscopes with an outer diameter of 2.2 to 2.5 mm do not have such a channel. The guidewire can be introduced into the trachea either by positioning the fibreoptic scope above the glottis and advancing the guide wire into the trachea or the guide wire is left behind after the fiberscope has been introduced into the trachea. The endotracheal tube can then be advanced over the guide wire into the trachea. Indeed, Choi and colleagues reported greater success with this rather than the direct access with the fibrescope after the airway had been established using a Size 1 laryngeal mask airway.[50]

A common problem when railroading over a tracheal guide wire is that the endotracheal tube easily pulls the wire guide out of the trachea and into the oesophagus. This can also happen when railroading over a fibrescope, a thinner fibrescope making this eventuality more likely. ‘Stiffening’ the wire with an appropriate diameter airway exchange catheter provides greater security that the railroaded endotracheal tube will actually enter the trachea. While appropriate diameter nasogastric tubes or suction catheters can also serve as stiffeners, our experience is that an airway exchange catheter is much better as it has the most appropriate stiffness. The use of a ‘stiffener’ also reduces the size discrepancy between the wire and endotracheal tube, with less chance of the endotracheal tube ‘hooking’ on the glottic opening. Should the endotracheal tube snag at the glottic opening, slight withdrawal and re-advancement thereof using a rotating action usually solves the problem. When using the guidewire “Seldinger-type” technique, sufficient guide wire length must be introduced into the trachea, without advancing it so far that it perforates the lung. The guidewire should not have a stiff “Amplatz” type tip, which can easily traumatise tissue or damage the bronchoscope.[46, 47] It must be emphasised that endotracheal tube position needs careful confirmation after using these techniques.

It is beyond the scope of this article to compare different supraglottic airway devices for congenital cervical teratomas in detail, or neonatal difficult airways in general. While no supraglottic device may prove effective, it is wise to have various makes and sizes available. The LMA Proseal® (Teleflex, Pennsylvania, USA) and i-gel (Intersurgical, Berkshire, United Kingdom) may provide higher airway leak pressures, and have an optional gastric access channel.[74, 75, 77] Compared to the classic Laryngeal mask airway, the Cookgas air-Q and the AmbuAura-I (Ambu®, Copenhagen, Denmark) have wider shafts that may facilitate the ability to ventilate and introduce concomitant hardware.[78] As an intubating conduit, the air-Q offers advantages of having both an anatomical curve and a tracheal tube ramp that directs the endotracheal tube anteriorly toward the larynx. The air-Q size 1 has a longer bowl and may be more difficult to insert in neonates smaller than 4 kg[53-55, 74] whereas the Ambu AuraOnce size 1 is designed for children less than 5kg (Figure 9).[53]

Figure 9. Comparison of different size 1 supraglottic airway devices: Ambu® AuraOnce™; LMA Supreme® (Teleflex®, USA); air-Q® supraglottic airway (Cookgas®, Missouri, USA).

Removal of the supraglottic airway device

Removal of the supraglottic airway device may be complicated by the risk of accidental endotracheal tube dislodgement.[52] The shorter shafts of newer, purpose-built supraglottic airway devices (air-Q and AmbuAura-I) facilitate safer removal over an already in-situ endotracheal tube.[74, 75] Other solutions include leaving the supraglottic airway in place, even for days.[79] Alternatively, both the endotracheal tube and supraglottic airway can be railroaded together and exchanged for an endotracheal tube; this approach is potentially risky with a truly difficult airway. We cautiously innovated the aforementioned method of removing the supraglottic airway device as we were concerned about the effects of its long-term presence.

Conclusion

Congenital cervical teratomas cause multiple local and systemic effects, the most significant of which may be potentially lethal airway complications. This case report has discussed in detail the multidisciplinary approach to the planning and management options available to physicians, with the emphasis on the utilisation of supraglottic airway devices and their usefulness in this and similar difficult neonatal airway scenarios.

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