Management of suspected tracheobronchial stenosis in ventilated neonates

Both bronchoscopy and balloon dilatation are often absent from the management plan of most units dealing with suspected neonatal tracheobronchial stenosis (TBS), despite several previous favourable reports. This may be due to medical inertia, to changes in practice, or to real issues about the safety and efficacy of these complementary techniques.

In the paper on page F3, 13 cases of TBS involved the lower trachea and bronchi and were probably caused by tube tip ulceration and deep suction. This is a different disease from the more commonly seen subglottic (laryngotracheal) stenosis which is probably of an acquired on congenital aetiology. The 13 cases of TBS were from a total of 1002 ventilated babies. This incidence compares with those of other series, but it does not include cases of subglottic stenosis. However, only one case of stenosis was mild and self limiting, so it does not seem that bronchoscopy was oversensitive and was itself responsible for this high figure.

Diagnosis
The authors list the radiological and clinical pointers for suspicion of TBS, though it is often not discovered until endoscopy for failure to extubate. Bronchoscopy is one of a number of available techniques which all have advantages and drawbacks.

Bronchoscopy
The installation of small amounts of non-ionic contrast medium does not seem to be associated with broncho-spasm or oxygen desaturation, and despite the iodine content does not affect thyroid function. It would thus seem to be safe, as described before.2 In these studies the radiological results correlated well with the endoscopic or postmortem findings. Riebel found the trachea and main bronchi to be well demonstrated in all procedures, though the lobar and segmental bronchi were not always seen adequately.2

RIGID ENDOSCOPY
Paediatric bronchoscopy can be challenging for both surgeon and anaesthetist, but modern optics permit superb visualisation and an ability to appreciate how firm a stenosis is by gentle dilatation. The exact site of any pulsation can be seen and complete cartilaginous rings demonstrated, if present. Video printers have revolutionised documentation. Neonatal laryngoscopy is possible in the neonatal unit, butatraumatic rigid bronchoscopy requires operating theatre facilities.

With tight stenoses a combination of rigid and fibreoptic bronchoscopy may be needed.

FIBREOPTIC BRONCHOSCOPY
With smaller, brighter, and clearer endoscopes, fibreoptic examination may become a safe and effective way of demonstrating the tracheobronchial tree in the neonatal unit.

Overall, if neonatal units have ready access to a high quality bronchoscopy service, this offers most information. If transfer to a second institution is necessary,
granulations may still be dislodged. This is a poor result. In severe stenoses where treatment is clearly required a dilation procedure is a sensible first option as the soft tissues of the neonatal airway may be more amenable to dilation than in older children and adults. In the absence of hard evidence the choice between rigid and balloon dilation will depend on local experience. Open surgery should be offered by few centres only so that experience can be concentrated and prognosis improved.

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