

## Subglottic stenosis in a resource-restricted setting – time to act

In this issue of *AJTCCM*, Kemp *et al.*<sup>[1]</sup> report on the prevalence, causes and management of acquired subglottic stenosis (SGS) during infancy in a resource-constrained hospital in South Africa (SA), a middle-income country. Although this was a retrospective descriptive study, with all the inherent shortcomings of such research, the results are telling and add valuable insights into this condition in SA.

The authors report on 29 infants identified between 2018 and 2022, who had undergone bronchoscopy and had confirmed acquired SGS. The majority were born at term, although 45% were premature (<37 weeks' gestational age), and all the infants had been intubated and ventilated at birth. Bronchoscopy showed grade 2 or worse SGS in most cases, with balloon dilatation, with or without surgery, the most common treatment administered.

Although there was a variety of different suspected causes for the SGS, 90% of the children had undergone emergency intubation, 52% had reportedly been intubated with an inappropriately large endotracheal tube (ETT), one-third had experienced unplanned extubation, and 24% had required multiple intubation attempts.

The authors conclude that in a resource-limited setting, SGS in infancy is often caused by preventable factors and is mostly treatable through endoscopic procedures.

A relatively rare but serious condition, SGS in infancy can be congenital or acquired, the large majority of cases described being acquired – and therefore preventable, with endotracheal intubation the leading cause. Various factors regarding endotracheal intubation have been associated with the development of SGS in infancy, these being level of sedation during intubation, traumatic intubation attempts, repeated intubation attempts, intubation with an inappropriately large ETT, unplanned or unintentional extubation requiring reintubation, and prolonged intubation,<sup>[2-5]</sup> all of which were described in Kemp *et al.*'s<sup>[1]</sup> cohort.

Various studies from high-income countries (HICs) have described these factors, but there is a paucity of data from low- and middle-income countries (LMICs). The present study shows that there are many similarities between the causes of SGS and subsequent management of infants in LMICs and HICs.

It would be expected that in a resource-constrained setting, there would be a higher number of newborns undergoing unplanned, and therefore often traumatic, intubation, because of a shortage of adequate monitoring during antenatal care and childbirth, unplanned premature births, and monitoring of the newborn in regional clinics and hospitals.<sup>[6,7]</sup> Owing to the relatively small cohort size, the exact prevalence in the present study could not be determined. However, there was little difference between the causes of acquired SGS in this LMIC setting and in HIC settings. Furthermore, the present study reported shorter duration of intubation, but similar rates of use of incorrectly sized ETTs.

What can be taken from this study is that we have the opportunity to improve our airway management of infants requiring intubation,

thereby decreasing the prevalence of acquired SGS. Through relatively easily implementable educational programmes, we should be able to ensure that correct ETT sizes are used for initial intubation of neonates. Proper sedation and controlled intubation techniques need to be actively followed, with implementation of intubation protocols in all our centres where antenatal care is provided and newborns are delivered. Ante- and postnatal monitoring of the sick newborn needs to be improved, thereby ensuring that emergency intubation, which is often more traumatic than controlled intubation, is kept to a minimum.

The concept of lung-protective ventilation has come to the fore over the past few decades. It is time also to think more holistically about this concept and to extend it to include 'airway'-protective ventilation. Shorter duration of intubation and a less traumatic ventilatory course are key, with adequate sedation during intubation paramount for decreasing the number of unplanned extubations and thereby the number of emergency reintubations.

It is important to have our own data from LMICs and to develop our own solutions to our problems. With improved and continuing education of all staff looking after our newborns, we will be able to make a substantial difference in the occurrence of acquired SGS.

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1. Kemp T, Goussard P, van Wyk L, Merven M. Acquired subglottic stenosis in children younger than 1 year in a resource-restricted hospital in South Africa. *Afr J Thorac Crit Care Med* 2026;32(1):3684. <https://doi.org/10.7196/AJTCCM.2026.v32i1.3684>
2. Parkin JL, Stevens MH, Jung AL. Acquired and congenital subglottic stenosis in the infant. *Ann Otol Rhinol Laryngol* 1976;85(5 Pt 1):573-581. <https://doi.org/10.1177/000348947608500503>
3. Catlin FI, Smith RJ. Acquired subglottic stenosis in children. *Ann Otol Rhinol Laryngol* 1987;96(5):488-492. <https://doi.org/10.1177/000348948709600502>
4. Veder LL, Joosten KFM, Timmerman MK, Pullens B. Factors associated with laryngeal injury after intubation in children: A systematic review. *Eur Arch Otorhinolaryngol* 2024;281(6):2833-2847. <https://doi.org/10.1007/s00405-024-08458-7>
5. Sherman JM, Lowitt S, Stephenson C, Ironson G. Factors influencing acquired subglottic stenosis in infants. *J Pediatr* 1986;109(2):322-327. [https://doi.org/10.1016/s0022-3476\(86\)80395-x](https://doi.org/10.1016/s0022-3476(86)80395-x)
6. Swarray-Deen A, Sepenu P, Mensah TE, et al. Preterm birth in low-middle income countries. *Best Pract Res Clin Obstet Gynaecol* 2024;95:102518. <https://doi.org/10.1016/j.bpobgyn.2024.102518>
7. García H, Ramos-Soto DI, Miranda-Novales G, Luna-Santos L. Prevalence of unplanned extubation in a tertiary care neonatal intensive care unit. *J Trop Pediatr* 2024;70(6):fmae039. <https://doi.org/10.1093/tropej/fmae039>

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