



Subglottic stenosis

This information sheet from Great Ormond Street Hospital (GOSH) explains the causes, symptoms and treatment of subglottic stenosis and where to get help.

The subglottis is just below the vocal cords at the bottom of the voice box (larynx). It is the narrowest part of a child's airway.

Subglottic stenosis is a narrowing of the subglottic airway. Doctors do not know how many children are affected by subglottic stenosis but we see around 200 children with the condition each year at GOSH.

What causes subglottic stenosis?

There are a number of causes of subglottic stenosis, which may be present at birth (congenital) or acquired later. Congenital subglottic stenosis is caused by problems in the formation of the cartilage ring that make up the windpipe. We do not know what causes this to happen during pregnancy.

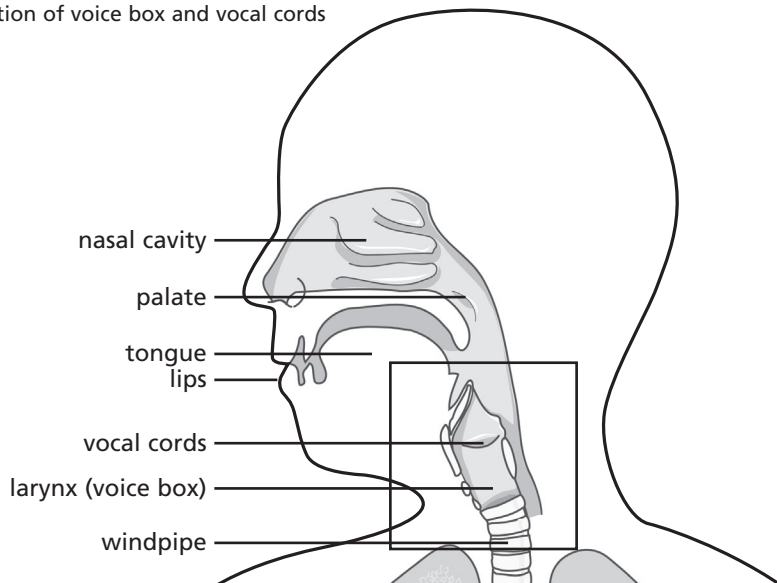
Most acquired cases of subglottic stenosis occur in the first few months of life and can result from needing a breathing tube inserted into the airway (intubation), particularly when a baby is born prematurely. The number of babies affected in this way is reducing as intubation techniques improve.

Subglottic stenosis can also happen following damage to the area or infection. Gastro-oesophageal reflux – where acid from the stomach travels back up the foodpipe to the throat – can cause irritation leading to narrowing. In severe cases, subglottic stenosis can occur quickly, causing a life threatening airway problem.

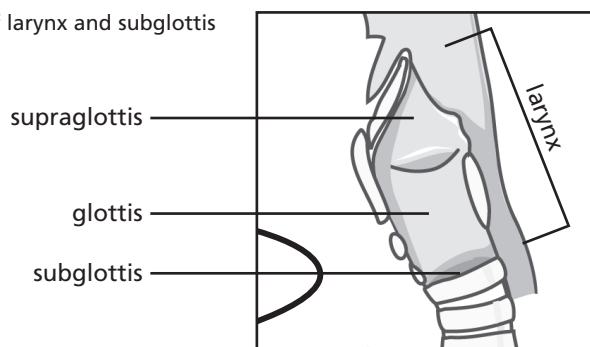
What are the signs of subglottic stenosis?

The most common symptom is high-pitched noisy breathing (stridor). Shortness of breath can also occur, especially when a child is active. The breathing difficulties may lead to difficulty feeding, failure to thrive or recurrent episodes of croup.

Location of voice box and vocal cords



Location of larynx and subglottis

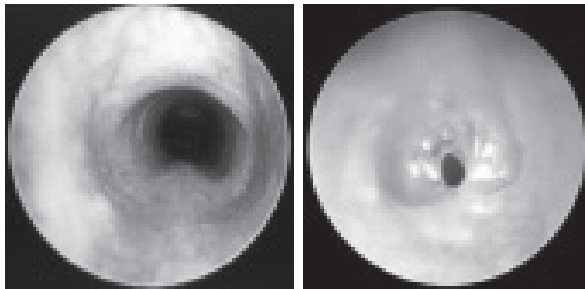




How is subglottic stenosis diagnosed?

Your child will need a clinical examination by an Ear, Nose and Throat (ENT) specialist doctor. They will ask you about your child's symptoms and past medical history. The diagnosis of subglottic stenosis is usually confirmed using a procedure called a microlaryngoscopy and bronchoscopy (MLB). An MLB is a test that allows the doctor to look into your child's airway (larynx and bronchi) using a small telescope and light. This is contained in a piece of equipment called an endoscope.

Subglottic stenosis is graded from one to four, depending on the severity of the airway blockage. Grade 1 is the least severe form and Grade 4 is the most severe.



Normal and grade 3 subglottic stenosis as seen through a laryngoscope ©eMedicine

How is subglottic stenosis treated?

The options for treatment depend on the severity of your child's symptoms and the grading of the subglottic stenosis.

Children who have mild subglottic stenosis with few problematic symptoms may not need any treatment. They will however need regular reviews with the ENT specialist doctor, usually with regular MLB procedures.

If your child has more severe subglottic stenosis or the symptoms are causing problems, there are a number of options for treating the condition surgically. Operations include dilatation (widening) the airway or laryngotracheal reconstruction.

Very severe subglottic stenosis which is interfering with a child's breathing may require a tracheostomy (artificial opening through the skin into the windpipe). The tracheostomy is placed below the narrowed section, allowing the child to breathe while other treatment options are considered.

What happens next?

The narrowed section of airway will be monitored closely using MLB, whether or not a child has had surgery. The MLB procedure can show whether the narrowing is getting better, that is, the airway is widening, and that any surgical treatment has been successful.