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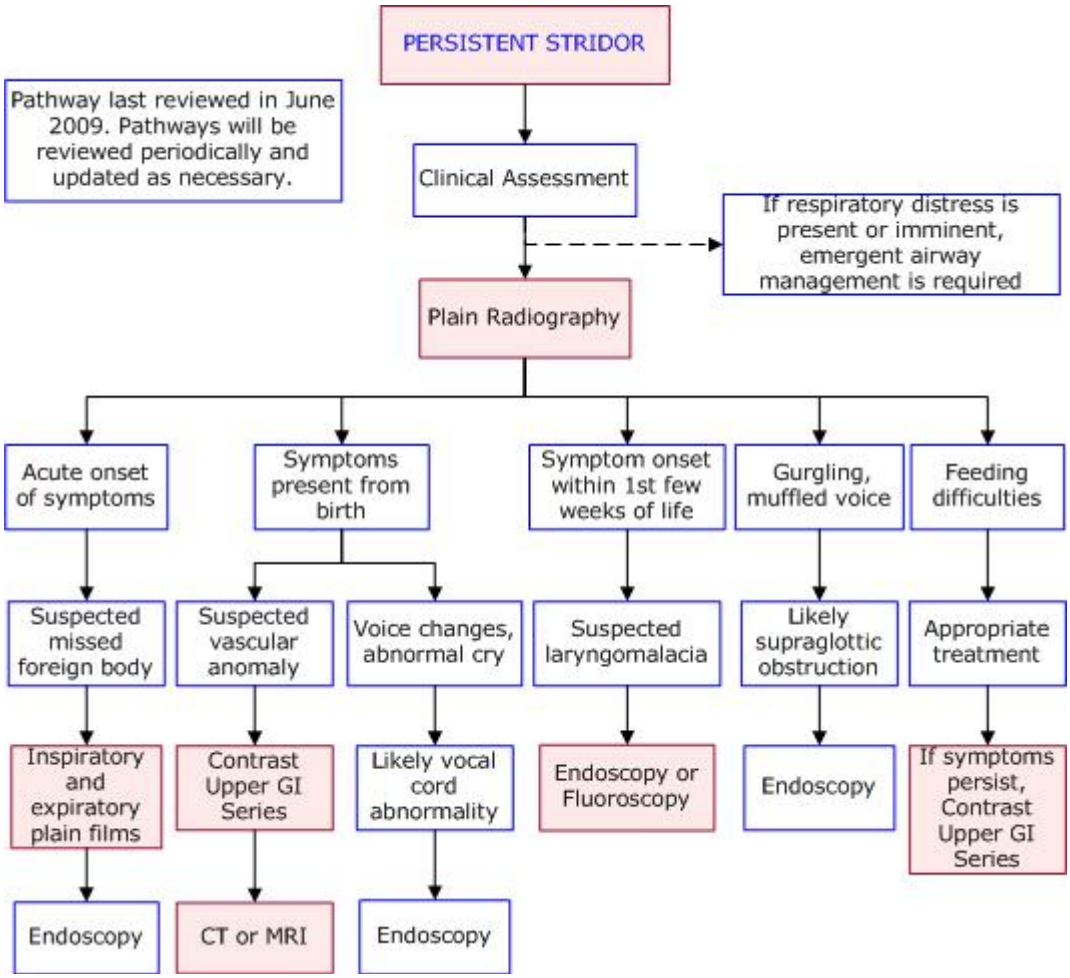


# PERSISTENT STRIDOR

- Stridor refers to a harsh respiratory noise caused by turbulent air passing through a narrowed airway.
- Acute stridor develops over minutes and usually resolves in days but may last up to 2 weeks. Chronic or persistent stridor lasts for more than 3 weeks, or recurs on 3 or more occasions. 1,2
- The timing of stridor in relation to the respiratory cycle can indicate the location of the narrowing. 3,4
    - Inspiratory stridor usually results from obstruction above the level of the glottis.
    - Biphasic stridor suggests obstruction in the area between the glottis and subglottis, or fixed/critical obstruction at any level.
    - Expiratory stridor is characteristic of intra-thoracic obstructions.
- Causes of stridor include: 2
    - Foreign body
    - Laryngomalacia
    - Tracheomalacia

    - Laryngotracheobronchitis
    - Vascular rings and slings
    - Subglottic stenosis
    - Laryngeal or tracheal stenosis
    - Congenital laryngeal web
    - Laryngeal cleft
    - Vocal cord palsy
    - Subglottic haemangioma
    - Retropharyngeal abscess/quinsy
    - Tracheo-oesophageal fistula, cystic hygroma
- The gold standard for diagnosing the cause of stridor is direct laryngoscopy and bronchoscopy. 1

## PLAIN RADIOGRAPHY

- The initial investigation for persistent stridor usually involves anteroposterior and lateral views of the neck and chest. 4
- High kilo-voltage films are required to adequately distinguish between soft tissue and air. 3,5
- The sensitivity of plain radiography varies greatly depending on the cause of persistent stridor. Compared to endoscopy, plain radiography has a low sensitivity for functional lesions such as laryngomalacia and tracheomalacia, but this improves for fixed lesions.
- A retrospective series found that radiographic findings only correlated with proven endoscopic abnormalities in 18.5% of cases. 6
- Inspiratory and expiratory chest films may demonstrate ventilatory differences seen with foreign body aspiration. Sensitivity and specificity for diagnosis of an airway foreign body is 68-73% and 45-67% respectively. 4,7,8

## CONTRAST UPPER GASTROINTESTINAL SERIES

- Primary indication is to detect the presence of vascular rings and slings causing tracheo-oesophageal compression. 9
- Indicated whenever mediastinal or cardiovascular abnormalities are suspected or when feeding difficulties and aspiration are present.
- Gastro-oesophageal reflux disease appears to be related to upper respiratory symptoms (eg. stridor) in the paediatric population, although the strength of the relationship is unclear. Treatment of reflux disease may therefore result in an improvement in respiratory symptoms. 10,11
- Various patterns of compression have been documented and may suggest the cause for stridor. 2,12

## CROSS SECTIONAL IMAGING (CT or MRI)

- Cross sectional imaging generally in the form of CT is used for assessing perilaryngeal or mediastinal compressive masses affecting the airway and has largely replaced conventional angiography for investigation of suspected vascular rings. 1,12,13
- CT is preferred over MRI because of the long scanning times associated with the latter, requiring young children to be sedated or undergo a general anaesthetic.
- Multidetector CT is superior to MRI for assessment of compressive lesions and depicting vascular anatomy. The use of low-dose multidetector CT needs to be studied further, but a case series comparing CT to surgery or endoscopy had an accuracy of 100%. 14,15

## FLUOROSCOPY

- Provides a dynamic assessment of the paediatric airway and allows visualisation of partial, dynamic causes of airway obstruction. Airway fluoroscopy can evaluate hemidiaphragm movements and check for localised air trapping. 16
- Usually able to demonstrate features of laryngomalacia, including collapse of the laryngeal and supralaryngeal structures during inspiration. 16,17
- Significant role in detecting foreign bodies compared to plain films, with a sensitivity of 73%-80% for subglottic, tracheal, bronchial causes of upper airway obstruction. It is less sensitive for diagnosing foreign bodies at supraglottic and glottic sites. 16

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