

- A rough, hoarse, often harsh vocal quality.
- A feeling of strain and of having to 'push' to keep the voice going.
- Often the pitch of the voice rises if the vocal folds are very stiff.

How can I tell if I have a cyst, sulcus or scar?

- Unfortunately all these symptoms can also occur in other vocal conditions so it is very important to seek a diagnosis from a voice specialist ENT surgeon (laryngologist), preferably one working in a multidisciplinary voice clinic.
- The laryngologist will examine your voice with specialist equipment, such as **stroboscopy** or **high speed photography**, in order to identify any areas of vocal fold stiffness that might indicate the presence of a cyst, sulcus or scar.
- Without this type of equipment these lesions may be difficult to identify.
- Even with good equipment it may not always be possible to determine exactly what is causing the stiff area until surgery.

Do these lesions respond to conservative treatment?

- Speech therapy and laryngeal manipulation may well improve voicing in these conditions by reducing the strain caused by excessive muscle tension and constriction that develop to compensate for the increased vocal stiffness.
- In the case of professional singers, singing lessons may also improve the voice quality for the same reason.
- However, cysts, sulci and scars are unlikely to resolve with conservative therapy and usually require surgery.

Surgical treatment options

Recent advances in surgical technique (**phonosurgery**) mean that cysts and some sulci can be removed and scars can be modified, either resolving or improving the vocal symptoms.

It is important to choose a voice specialist laryngologist who is familiar with phonosurgical techniques.

Your surgeon will explain your diagnosis and what he/she plans to do at surgery.

It is also important to be referred for post-operative voice therapy to resolve any remaining compensatory muscle tension and to shake loose the stiffness that is a normal part of post operative healing.

Likely outcomes

Cysts frequently respond well to surgical removal and the results are generally good. Occasionally they can recur, so it is important to attend a review appointment with your laryngologist.

Sulci can sometimes be removed. The results are more variable as some of the pliable layers (*lamina propria*) may be absent or scarred down in the area of the sulcus making surgery more challenging.

Scarring can be more difficult to remove and the results are therefore less predictable. Most people, however, report vocal improvement following surgery.

It is important to remember that recovery after removal of these lesions takes longer than simple healing. Do not be alarmed if your voice sounds temporarily worse after surgery. This should resolve with voice therapy and most people see good improvement within three months. It is not uncommon, however, to see continuing improvement for six months to a year or more.

If you are diagnosed with a cyst, scar or a sulcus, do not despair. **Phonosurgery is not to be feared** and, with voice therapy, **you are very likely to make a good recovery**. The journey back from these problems may take longer than you would like, but it is usually well worthwhile.

There's more information about cysts, sulci and scarring on our website: britishvoiceassociation.org.uk

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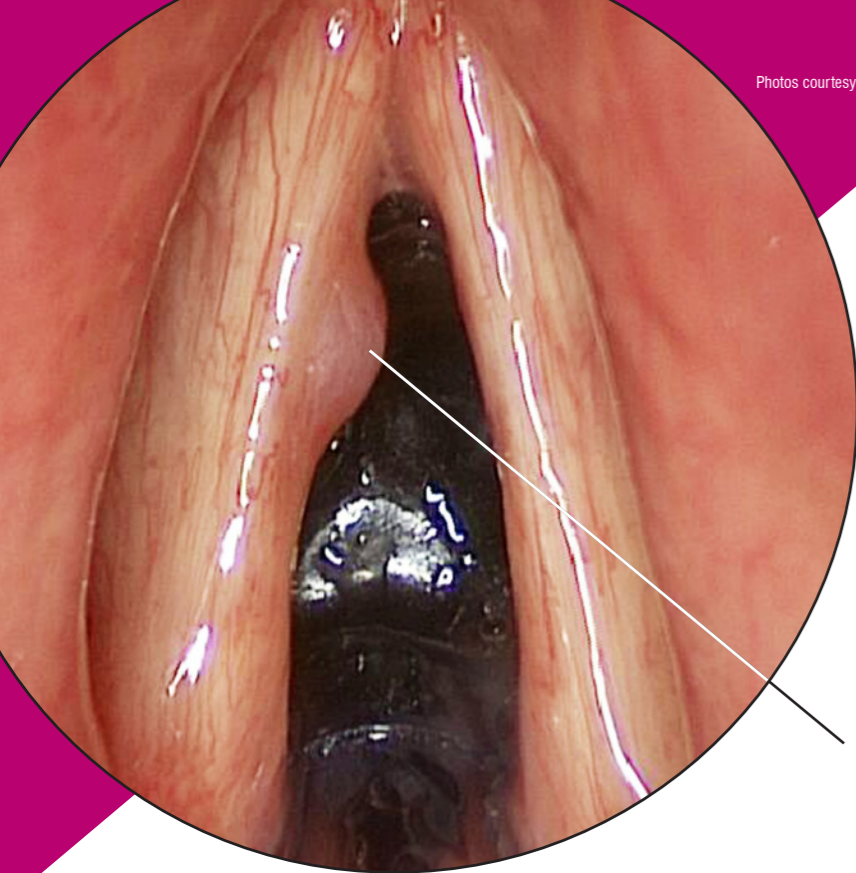
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DIFFICULT VOCAL PROBLEMS

CYSTS SULCI SCARRING

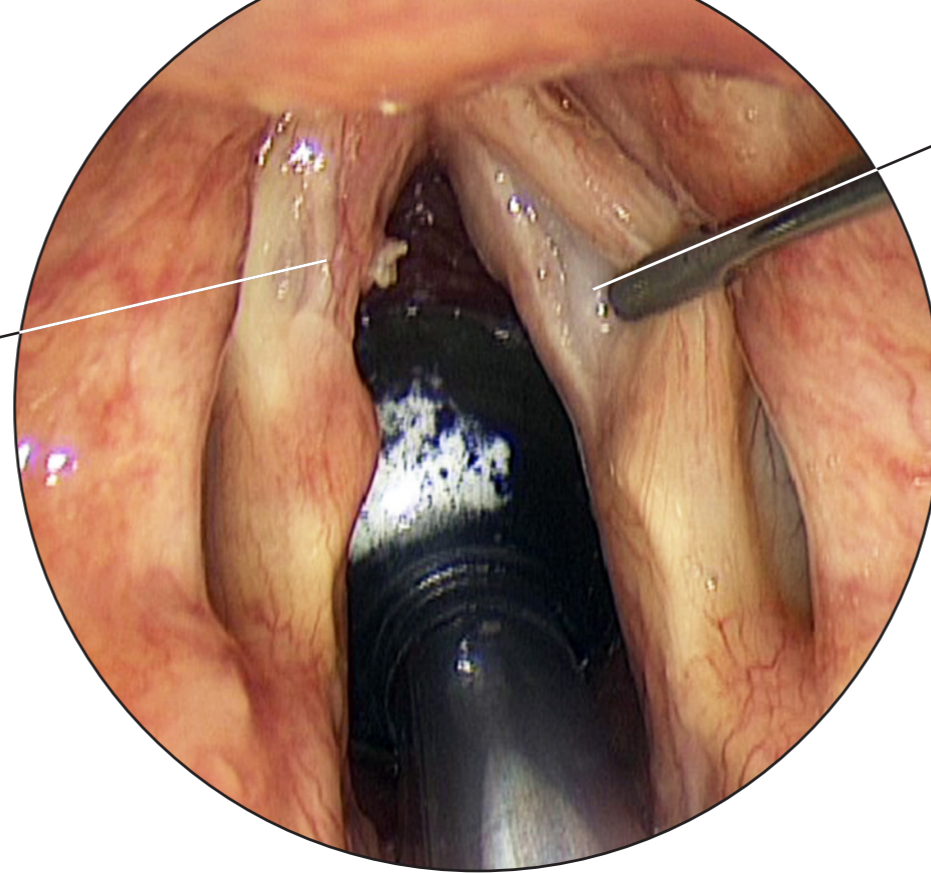


Voice care information from THE BRITISH VOICE ASSOCIATION
WORLD VOICE DAY 2016



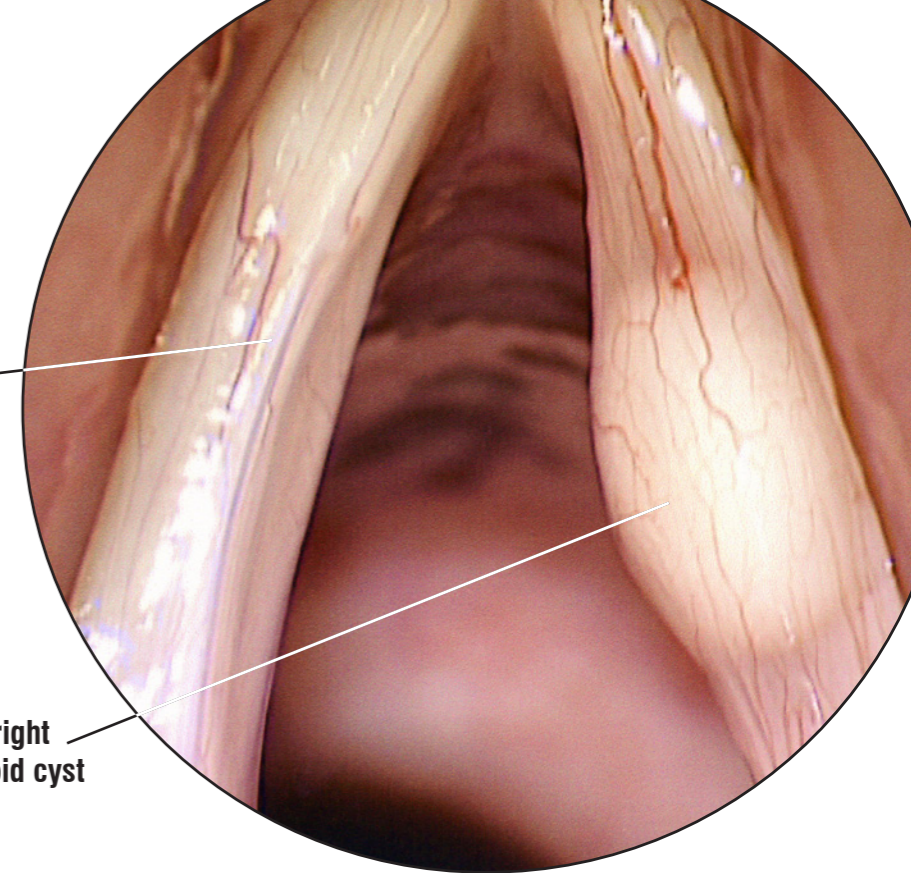
Left mucosal bridge overlying a vergeture ('bald patch') of vocal ligament

Left mucus cyst on vocal fold (or 'cord')



Exposed right vergeture

Less obvious left mucosal bridge and sulcus vocalis



Obvious right epidermoid cyst

What are **Cysts, Sulci** and **Scars**?

- Cysts occur when the tissue of the vocal fold (often referred to as the 'vocal cord') forms a small, closed sac that fills with fluid or a semi-solid material. Some cysts develop when the ducts of mucous producing glands become blocked, but other origins are less well understood.
- Occasionally a remnant strip of mucous membrane (vocal fold lining) will remain over the top of a discharged cyst. These are referred to as **mucosal bridges**.
- A sulcus (plural *sulci*) is a small groove or furrow that creates a depression along part of the vocal fold. These may form congenitally but some may develop when cysts rupture leaving a small pit. The pit then elongates over time and vocal use.
- Occasionally a laryngologist may give a diagnosis of '**vergeture**'. A vergeture is a defect in the layered structure of vocal fold (see over) where the pliable outer layer is missing over a small area of the vocal fold, rather like a bald patch on a tyre. It appears very similar to a sulcus at examination and has similar effects on vocal fold vibration.

- Scarring occurs when fibrous tissue is laid down to repair damage to a vocal fold. Scarring is a normal part of the healing process. Excessive scarring can develop as the result of repeated injury from poor voice use, in response to surgery or to some other form of vocal fold injury such as bleeding or irritation from inhaled noxious substances.
- Cysts, sulci and scars can all vary in size and extent. Their size and extent will determine how seriously they affect voicing and how easy they are to treat.

Why are they such a **problem**?

Each vocal fold is a layered structure. The outer layers are pliable and deformable and are designed to roll smoothly over the deeper layers during voicing, a little like a wave running towards the seashore. It is this pliability that gives the voice its clear quality. All these lesions disrupt the integrity of the pliable outer layers, effectively tacking them down onto the firmer, deeper layers below creating areas of stiffness on the vocal fold that do not vibrate well. As these stiff areas are bordered by more pliable areas, voicing will tend to stress the surrounding healthy tissue causing bruising and swelling.

Typically, patients with these lesions report that the voice recovers/improves with longer periods of voice rest, but if vocal use is increased again the symptoms return. Repeated injury tends to result in further scarring so the symptoms may gradually worsen over time (see our website www.britishvoiceassociation.org.uk) for an extended explanation of vocal fold structure).

What **symptoms** do they produce?

Symptoms may include:

- Breaks in voicing across specific areas of the vocal range.
- Difficulties initiating voicing (**slow onset**) and in sustaining voicing to the end of a sentence (**early offset**).
- The difficulties initiating voicing will also sometimes occur following unvoiced (whispered) consonants in a sentence.