CONDITION

Juvenile angiofibroma

Juvenile angiofibroma is a noncancerous, blood-vessel-rich growth behind the nose that can cause blockage and repeated nosebleeds.

WHAT IT IS
Noncancerous, blood-vessel-rich growth behind the nose

BODY SYSTEM
Nose, sinuses, and nearby facial structures

MAIN SYMPTOMS
One-sided blockage, repeated nosebleeds, facial pressure, reduced hearing

WHAT CAUSES IT
Unknown; hormones and growth signals may contribute

HOW IT IS DIAGNOSED
Endoscopy and contrast imaging; pathology after removal

MAIN TREATMENT
Surgery, often with blood-vessel embolization

CAN IT BE CURED?
Yes - complete removal often controls it

IS IT AN EMERGENCY?
Sometimes - heavy bleeding or breathing difficulty

LONG-TERM OUTLOOK
Usually excellent, though recurrence needs monitoring

Overview

Juvenile angiofibroma is a rare, noncancerous growth found behind the nose. It usually begins near the opening where blood vessels and nerves pass into the nasal cavity. It is also called juvenile nasopharyngeal angiofibroma.

The growth contains many blood vessels mixed with firm, fibrous tissue. Although it is not cancer and does not normally spread to distant organs, it can grow into nearby spaces. These may include the sinuses, cheek, eye socket, or the area at the base of the skull.

Juvenile angiofibroma occurs almost entirely in adolescent boys and young men. Rare cases occur in other people or at older ages. Its strong connection with puberty suggests that hormones influence its growth, but the exact cause is not known.

The condition matters because its blood vessels can cause repeated or heavy nosebleeds. A growing mass can also block one side of the nose or press on nearby structures. Specialist assessment is important, but most people can be treated successfully.

Symptoms

Symptoms often develop gradually over several months. Because common problems such as allergies can also block the nose, the growth may not be recognised at first.

Typical symptoms include:

Hearing changes can occur when the growth blocks the tube connecting the middle ear to the back of the nose. This can cause fluid to collect behind the eardrum.

A larger growth may cause visible facial swelling, headache, numbness, double vision, a bulging eye, or changes in the roof of the mouth. These symptoms do not mean that the growth is cancerous. They may mean it has extended into nearby spaces and needs prompt assessment.

The classic pattern is repeated, painless nosebleeds together with worsening blockage on one side. These symptoms can have other causes, so they require examination rather than self-diagnosis.

- Increasing blockage on one side of the nose
- Repeated nosebleeds, often from the same side
- A feeling of pressure or fullness in the face
- Reduced sense of smell
- Nasal-sounding speech
- Mucus or drainage from the nose
- Reduced hearing or a blocked-ear feeling

Causes and risk factors

The exact cause of juvenile angiofibroma is unknown. It is not caused by an infection, nose picking, allergies, or an injury.

The condition appears to be influenced by male sex hormones called androgens. This may explain why it develops mainly during puberty in people assigned male at birth. Researchers have also found changes in signals that control blood-vessel and tissue growth, but no single cause has been confirmed.

Being an adolescent boy or young man is the main recognised risk factor. Juvenile angiofibroma is not usually inherited, and having a relative with it does not generally mean that you will develop it.

There is no evidence that ordinary activities, foods, or environmental exposures cause this growth.

Diagnosis

Assessment usually starts with your symptoms and an examination by an ear, nose, and throat specialist. A thin camera called a nasal endoscope may be passed gently into the nose. This can show a smooth, reddish mass behind the nasal cavity.

Imaging is central to diagnosis. A contrast-enhanced CT scan can show the growth, nearby bone changes, and its relationship to the sinuses. Contrast is a substance that makes blood vessels and tissues clearer on the scan.

An MRI provides detailed images of soft tissues. It is particularly useful for checking whether the growth reaches the eye socket, deeper facial spaces, or the area inside the skull. Imaging findings are often distinctive enough for specialists to make a working diagnosis without taking a sample first.

Unlike many other growths, juvenile angiofibroma is not usually biopsied in a clinic. A biopsy means removing a small tissue sample. Because this growth contains many blood vessels, cutting into it can cause severe bleeding. Tissue is commonly examined by a laboratory after planned surgical removal.

Angiography may be used before treatment. During this test, contrast is placed into the arteries so the medical team can map which vessels supply the growth. The results can also help with embolization.

The growth may be assigned a stage based on its size and how far it has extended. Staging helps the team plan treatment; it does not mean the condition is cancer.

Treatment and management

Treatment is planned by a specialist team. This may include ear, nose, and throat surgeons, head and neck surgeons, interventional radiologists, neurosurgeons, and radiation specialists. The plan is based on the growth's size, location, blood supply, symptoms, and previous treatment.

Surgery is the main treatment. Many growths can be removed through the nostrils using an endoscope, avoiding facial cuts. Larger growths or those extending into difficult areas may require a combined or open approach. The aim is to remove the growth while protecting nearby nerves, the eyes, the brain, and major blood vessels.

Embolization is often performed shortly before surgery. An interventional radiologist guides a narrow tube into the arteries supplying the growth and blocks selected vessels. This can reduce bleeding during the operation. Embolization has its own risks, which the team should explain before the procedure.

Radiotherapy uses focused radiation to control tissue growth. It may be considered when surgery cannot safely remove the whole growth, when it has reached areas that are difficult to operate on, or when it returns. Because radiation can affect healthy tissue, especially in younger people, its possible long-term effects are weighed carefully.

Occasionally, careful observation may be considered for a small or stable growth when treatment risks are greater than the immediate benefit. Some juvenile angiofibromas become less active after puberty, but spontaneous shrinkage cannot be relied upon. Observation involves scheduled examinations and imaging rather than simply waiting without follow-up.

Medicines do not usually remove the growth. They may be used to support care, such as treating discomfort or anaemia caused by blood loss.

Complications

Bleeding is the main immediate concern. Repeated nosebleeds can lead to iron-deficiency anaemia, meaning there are not enough healthy red blood cells to carry oxygen. This may cause tiredness, weakness, shortness of breath, or pale skin.

A growing juvenile angiofibroma can press on or enter nearby structures. Possible effects include persistent sinus blockage, middle-ear fluid, hearing problems, facial changes, numbness, and problems with eye movement or vision. Extension toward the skull can make treatment more complex, but it still does not mean the growth has become cancer.

Surgery and embolization can also cause complications. These may include bleeding, infection, temporary numbness, nasal crusting, damage to nearby structures, or reactions related to anaesthesia or contrast. The exact risks depend on the growth's location and the procedure used.

Juvenile angiofibroma can return after treatment. Recurrence is more likely when part of the growth cannot be removed or when it has extended into complex areas. Follow-up imaging helps find regrowth before it causes major symptoms.

Prevention

Juvenile angiofibroma cannot currently be prevented. Its cause is unknown, and it is not linked to a controllable habit or exposure.

Once the condition has been diagnosed, following advice about activity and nasal care may lower the chance of provoking bleeding while you wait for treatment. This does not prevent or shrink the growth.

Keeping follow-up appointments cannot prevent every recurrence, but it can help detect regrowth early.

Living with it and what to expect

Before treatment, symptoms may remain stable for a time or gradually worsen as the growth enlarges. One-sided blockage and nosebleeds are often the most disruptive problems. Blood loss may also affect energy, concentration, school, work, or exercise.

After surgery, temporary congestion, bloody discharge, crusting, facial pressure, and reduced smell can occur while the nose heals. Follow the treating team's instructions about nose blowing, physical activity, nasal rinses, and returning to school, work, or sport. Recovery time differs according to the operation and the growth's extent.

Most people return to their usual activities after recovery. Treatment does not generally affect puberty, fertility, or life expectancy. A more extensive growth may require several specialists, more than one procedure, or longer recovery.

Follow-up commonly includes nasal endoscopy and CT or MRI scans. Monitoring may continue for years because regrowth can occur after an apparently successful operation. Follow-up is routine care and does not mean that recurrence is expected.

If the growth returns, further surgery, embolization, radiotherapy, or observation may be considered. The choice is based on where the remaining or recurrent tissue is located and whether it is changing.

When to get medical help

Arrange a routine medical appointment if you have repeated nosebleeds, especially when they come from the same side, or if one side of your nose stays blocked without a clear reason. These symptoms are usually caused by something other than juvenile angiofibroma, but they

should be assessed.

If you have already been diagnosed, contact your specialist promptly for increasing nosebleeds, worsening blockage, new facial swelling, reduced hearing, numbness, persistent headache, or changes in vision. These symptoms may require an earlier examination or scan.

Seek emergency help for:

While waiting for emergency help during a nosebleed, sit upright and lean forward rather than lying flat. Pinch the soft part of the nose continuously. Do not tilt your head back, because this can cause blood to run into your throat.

- A heavy nosebleed that does not stop with firm pressure
- Bleeding that makes it hard to breathe
- Fainting, confusion, marked weakness, or severe breathlessness
- Vomiting or choking on a large amount of blood
- Sudden loss of vision or a major new neurological symptom

Common questions

Is juvenile angiofibroma cancer?

No. It is a benign, or noncancerous, growth and does not usually spread to distant parts of the body. However, it can grow into nearby tissues and cause serious bleeding or pressure, so it still needs specialist care.

Why does it mostly affect teenage boys?

The exact reason is uncertain. The pattern suggests that androgens, which rise during male puberty, affect the growth. Hormones are probably only part of the explanation.

Can juvenile angiofibroma go away by itself?

Some growths may stop growing or shrink after puberty, but this is not predictable. A symptomatic or enlarging growth should not be left without specialist monitoring. Observation is suitable only in selected circumstances.

Why can't the growth just be biopsied?

A juvenile angiofibroma has a rich blood supply. Taking a sample through the nose can cause major bleeding. Specialists usually rely on its characteristic appearance and imaging, with tissue analysis performed after controlled removal.

Will it come back after surgery?

It can recur, particularly if the growth reached areas where complete removal was unsafe. Regular endoscopy and imaging are used to look for regrowth. A recurrence can often be treated again.

Can I exercise with juvenile angiofibroma?

Activity advice is individual because strenuous exercise or injury could be a concern when bleeding is active or around surgery. Follow the restrictions given by your specialist team rather than assuming all exercise is unsafe.

Sources

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