

Olecranon bursitis

Synonym: student's elbow

What is olecranon bursitis?

The olecranon bursa lies over the ulna at the posterior tip of the elbow. Since it is so near the surface it is frequently subject to trauma. Typically this is caused by constant irritation when the person leans on the table whilst reading or writing but can also be caused by repetitive elbow movement or an isolated traumatic event. It may present as infected or non-infected.

Olecranon bursitis epidemiology^[1]

The exact incidence of olecranon bursitis is unknown. Some studies have reported a prevalence of around 1 per 10,000 people. Two thirds of olecranon bursitis cases are non-septic..

Olecranon bursitis is more common in:

- Men.
- Young to middle age.
- Occupations causing regular trauma to, or pressure on, the elbow (such as gardeners, mechanics, plumbers, roofers, carpet-layers, students and clerical workers).
- Sportsmen or women who are involved in sports which use repetitive elbow flexion or over-head throwing (eg, javelin, baseball, cricket, weightlifting, gymnastics) or those which put them at risk of more frequent falls on to the elbow (eg, hockey, rugby, football).

Most cases of septic bursitis are caused by *Staphylococcus aureus*, with streptococci being the next most common cause. Fungal infections and infection with mycobacteria are more common in immunocompromised individuals. Other organisms which may be involved less commonly are:

- *Pseudomonas*
- *Enterobacter agglomerans*
- *Enterococci faecalis*
- *Haemophilus influenzae*
- *Escherichia coli*

Olecranon bursitis symptoms^[1]

History

The principal symptoms are focal swelling overlying the posterior tip of the elbow, which may or may not be painless. Pain tends to lessen with the chronicity of the condition. The pain is often exacerbated by pressure, such as leaning on a table.

Clues about aetiology may be evident from the history. Onset may date from an isolated episode of trauma resulting in a contusion, or occupation or activity may cause recurrent microtrauma (eg, carpet laying or writing at a table). Acute onset without trauma is suggestive of infection.

Examination

A clearly demarcated swelling in the region of the posterior elbow tip is the classic finding. It has been described as having the appearance of a 'goose egg'. The area may be tender to palpation, with redness and warmth, particularly if infection is present. Skin inspection may reveal contusion or abrasion if there was recent injury.

The range of movement of the joint is usually normal but may be limited at the end of flexion, due to pain from compression of the bursa. Unusual restriction of active or passive movement with a history of trauma raises the suspicion of fracture of the olecranon process.

Signs suggestive of infection are:

- Pain.
- Bursa is hot to touch.
- Increasing swelling.
- Surrounding cellulitis.
- Broken skin over the bursa.
- Fever (if there is advanced infection).

Elbow pain during active or passive movement may increase the clinician's suspicion of fracture of the olecranon process if there is a history of trauma. A more generalised swelling of the joint points to an alternative diagnosis.

Other joints should be examined for signs of crystal arthropathy or of systemic inflammatory processes such as rheumatoid arthritis (eg, rheumatic nodules).

Differential diagnosis

The differential diagnoses can include fracture of the olecranon process, [rheumatoid arthritis](#) and other inflammatory arthropathies, [gout](#) and [pseudogout](#), [cellulitis](#) and [septic arthritis](#).^[1]

The most significant diagnostic decision is whether sepsis is present or absent.^[2]

Investigations^[1]

The diagnosis is usually made clinically but the following may be appropriate if an underlying disease process is suspected or in cases of diagnostic difficulty.

Laboratory studies

A raised white cell count will suggest infection. Check uric acid levels, rheumatoid factor, the erythrocyte sedimentation rate (ESR) and the C-reactive protein (CRP) level.

Imaging studies

If there is a history of significant trauma, a plain X-ray should be arranged to exclude fracture of the olecranon process.

Ultrasound may be helpful where there is diagnostic doubt. It may detect effusions, synovial proliferation, calcifications, loose bodies, rheumatoid nodules, gout tophi and septic processes.^[3] MRI scanning may be contributory.^[4] It may help confirm that there is no infection.^[5]

Aspiration

Aspiration of the bursa is useful, both for diagnostic purposes (to establish whether the bursa is septic or not) and to relieve symptoms. An 18-gauge or 20-gauge needle should be used, using a sterile technique. The elbow should be flexed and the needle inserted directly into the bursa with a lateral approach used to avoid the ulnar nerve.

The nature of the fluid aspirated may give a clue to the cause (straw-coloured suggesting non-septic bursitis, pus suggesting septic bursitis, bloodstained aspirate suggesting trauma, rheumatoid arthritis, gout or septic bursitis, and milky aspirate suggesting gout or pseudogout).

Send the fluid for microscopy and culture. Gram staining, culture and sensitivity will help to identify any infective agent and to guide treatment. The presence of crystals will suggest a crystal arthropathy. Monosodium urate crystals are characteristic of gout; calcium pyrophosphate or hydroxyapatite crystals are characteristic of pseudogout.

Associated diseases^[5]

Olecranon bursitis is known to be associated with several medical conditions and with immunosuppression.

- [Diabetes mellitus](#).
- [Rheumatoid arthritis](#).
- [Gout](#).
- [HIV](#).
- [Alcohol dependency](#).
- [Chronic kidney disease](#) (may be due to uraemia or repeated microtrauma during dialysis).^[6]

- Immunosuppressive treatment (particularly steroids or other immunosuppressants used to treat inflammatory bowel disease, [polymyalgia rheumatica](#) and chronic respiratory diseases).

Olecranon bursitis treatment and management^[1] ^[5]

Management depends on whether the bursa is septic or non-septic. Non-septic bursitis is far more common but clinically this diagnosis may not always be clear.

Non-septic bursitis

If confident that there is no infection then advise conservative management in the first instance. Reduced activity and ice are recommended. For some, a compression bandage may alleviate discomfort. Advise protecting the elbow from trauma and consider paracetamol or a non-steroidal anti-inflammatory drug (NSAID) if needed for pain relief.

As conservative methods are safe and there is no convincing evidence of superior efficacy for more interventional treatment, this should be first-line treatment until results of further studies are available.^[7] ^[8] The majority respond to conservative treatment.

Other treatment options include aspiration to relieve discomfort and/or corticosteroid injection into the bursa. These procedures should be done by a person with suitable experience and expertise. Steroid injection in particular carries a risk of secondary infection.

Where an olecranon spur is contributing to recurrence, it is thought that surgical removal of the spur is helpful.

Septic bursitis

While awaiting aspirate culture results, treat empirically with antibiotics to cover the most common pathogens (staphylococci and streptococci). Usual options are flucloxacillin 500 mg qds or erythromycin 500 mg qds for seven days, continuing for a further seven days if there has not been complete resolution. Antibiotic choice may then be changed if sensitivities from the culture are helpful. If infection is severe, intravenous antibiotics may be required. In immunocompromised people with fungal infection, systemic anti-fungal treatment may be needed.

Surgical drainage or bursectomy may be required in some cases.

Complications^[1]

Secondary infection may occur secondary to aspiration or steroid injection. Rarely, [secondary septic arthritis](#) can develop. [Sepsis](#) and [osteomyelitis](#) occasionally occur in severe septic bursitis, particularly if the condition presents late or the diagnosis is not immediately obvious. Fistulae may develop following spontaneous rupture or surgical drainage. Recurrence may occur.

Persistent pain and associated decreased functional use may be caused by the disease process in recalcitrant cases.

Prognosis^[1]

- Most patients recover completely without complications. Recurrence is more likely when the aetiology is repeated minor trauma.
- Non-septic olecranon bursitis of any cause typically has a benign course and most people respond well to conservative treatment without the need for surgery.
- Septic olecranon bursitis will usually resolve completely without the need for surgical drainage if it is treated with aspiration and adequate antibiotic treatment.

Olecranon bursitis prevention

Patients should be advised to avoid excessive pressure over the elbow. Care should also be taken not to traumatise the elbow from persistent rubbing or contact sports. Elbow pads may help to prevent recurrence, although this has not been proven in clinical studies.

Further reading

- [Reilly D, Kamineni S](#); Olecranon bursitis. *J Shoulder Elbow Surg.* 2016 Jan;25(1):158-67. doi: 10.1016/j.jse.2015.08.032. Epub 2015 Nov 11.
- [Pangia J, Rizvi TJ](#); Olecranon Bursitis. *StatPearls*, July 2021.
- [O'Shea NE, Tadi P](#); Olecranon Bursa Aspiration. *StatPearls*, Sept 2021.

Disclaimer: This article is for information only and should not be used for the diagnosis or treatment of medical conditions. Egton Medical Information Systems Limited has used all reasonable care in compiling the information but makes no warranty as to its accuracy. Consult a doctor or other healthcare professional for diagnosis and treatment of medical conditions. For details see our [conditions](#).

Authored by:	Peer Reviewed by: Dr Hayley Willacy, FRCGP	
Originally Published: 20/11/2023	Next review date: 27/04/2022	Document ID: doc_968

View this article online at: patient.info/doctor/olecranon-bursitis

Discuss Olecranon bursitis and find more trusted resources at [Patient](#).



To find out more visit www.patientaccess.com
or download the app



Follow us

