A bunion or hallux valgus deformity of the big toe is one of the most common foot & Ankle conditions seen in primary care. The big toe is abducted from the midline, usually accompanied by rotation of the toenail (valgus and pronation of the big toe).

This results in a prominent metatarsal head, which is adducted towards the midline. Although bunions are usually bilateral, patients can present with unilateral bunions or one side being much more symptomatic.

1. Aetiology

Aetiology of hallux valgus (HV) is complex and multi-factorial:

Footwear - wearing shoes with narrow toe box, high-heels are generally regarded as exacerbating factors and may enhance the progression of the deformity. Although bunions occur in unshod communities as well as shoe wearing ones, the evidence from one study in China revealed that HV was 70 times more common among shoe-wearers than unshod members of the community. However, there is insufficient evidence to support the common belief that narrow toe box shoes cause hallux deformity.

Familial incidence - Almost 65-85% have a positive family history of HV. There appears to be an autosomal dominant trait with incomplete penetrance - this means that successive generations won’t always have the deformity.

Joint hyperlaxity - Patients with generalised joint laxity e.g. Marfan's syndrome and Ehlers-Danlos syndrome may have a marked HV deformity.

2. Clinical Features

The most common symptoms are pain, difficulty with shoe-wear, limitations in activity levels and unwanted cosmetic appearance of the feet. The pain is usually progressive and can be present for many years. Location of pain can be on the bunion itself or underneath the ball of the foot if there is overloading of the lesser toes. In more severe cases, there is crossover deformity between the big and second toe (pic). This can lead to hammer toe deformity of the 2nd toe.
Assessment – A rapid assessment of HV deformity helps in making a decision on appropriate treatment.

1. Tenderness at the Bunion itself
2. Range of motion at 1\textsuperscript{st} MTPJ
3. Looking for any callosity underneath the 2\textsuperscript{nd} MT head
4. Flattening of the medial arch of the foot and or hindfoot valgus (Planovalgus foot)
5. Assessment of neurovascular status
3. Investigations

A bunion is a clinical diagnosis. However, if surgery is to be considered, X-rays of the foot are usually taken. It is important to obtain two views (DP and lateral) when the patient is standing and weight-bearing. The degree of deformity and degeneration of the 1st MTPJ is assessed on these radiographs. However, there is no direct correlation between the severity of hallux valgus deformity measured by x-ray and the symptoms the patient may experience.

Additional investigations are only necessary if other conditions, such as gout, rheumatoid arthritis or peripheral vascular disease are suspected.

Patients’ expectations and concerns need to be taken into account when assessing bunions, especially with regard to the need for surgical correction. For example, a young athletic patient is likely to be more concerned about the mobility of their joint than its physical appearance.

It is important to consider the type of shoes the patient has been wearing (and may continue to wear after treatment). One study found that most women who were questioned wore shoes narrower than their feet, shoes which were also shorter, narrower and had a smaller total area than those worn by men.2

Bunions are classified as mild, moderate or severe based on the radiographic measurements (see table below).

<table>
<thead>
<tr>
<th>CLASSIFYING BUNION SEVERITY</th>
<th>Hallux Valgus Angle</th>
<th>Intermetatarsal Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild</td>
<td>&lt;30°</td>
<td>&lt;9-14°</td>
</tr>
<tr>
<td>Moderate</td>
<td>30-40°</td>
<td>14-18°</td>
</tr>
<tr>
<td>Severe</td>
<td>&gt;40°</td>
<td>&gt;18°</td>
</tr>
</tbody>
</table>

3. Treatment

The initial treatment of Bunion can be without surgery. The main aim in early treatment is to relieve the pressure on the bunion. Advising patients to wear shoes that have a wide toe box may help. Medial padding and orthotic inserts are of limited benefit. Although, non-operative measures do not prevent progression of a bunion, they can be effective at easing foot pain.

If changing the footwear does not improve the pain, surgery may be an option, with numerous operations available to correct the deformity.

Surgical options fall into several broad categories. All surgical
procedures include bunionectomy and distal soft tissue balancing, the bony procedures performed fall into five main categories (pic).

Keller’s excision arthroplasty involves creating a flexible joint by excision of the medial eminence of the metatarsal head, together with some of the proximal phalanx and is reserved for pain relief in very low-demand patients.

NICE guidance on minimal access techniques states that less invasive techniques may be attractive to patients, but need further evaluation.³

85-90% patients are happy after bunion surgery. The most common complication after surgery is recurrence, particularly in cases where the deformity and soft tissues at the first metatarsophalangeal joint are undercorrected. Other complications include stiffness, malunion, non-union, infection, DVT/PE, hallux varus, complex regional pain syndrome.
REFERENCES


3. NICE. Surgical correction of hallux valgus using minimal access techniques. IPG332; February 2010.