

Clubbing

Definition / Supporting Information

Digital clubbing is defined as a gradual increase in the soft tissue around the end of the fingers and toes [Patient] (see Figures 1–2).

It is usually identified on physical examination and characteristics can include:

- Painless spongy swelling of the nail bed
 - Usually bilateral unless a localised vascular abnormality exists
- No change to the underlying bone
- Development of a convex nail base over time
- Loss of the angle between the nail fold and plate (Schamroth's sign)

Digital clubbing is thought to result from changes to the volume of interstitial fluid and increased blood flow to the area. The exact pathophysiology remains unknown; however, it may be due to platelet-derived growth factor from megakaryocytes bypassing the lungs in chronic inflammatory conditions.

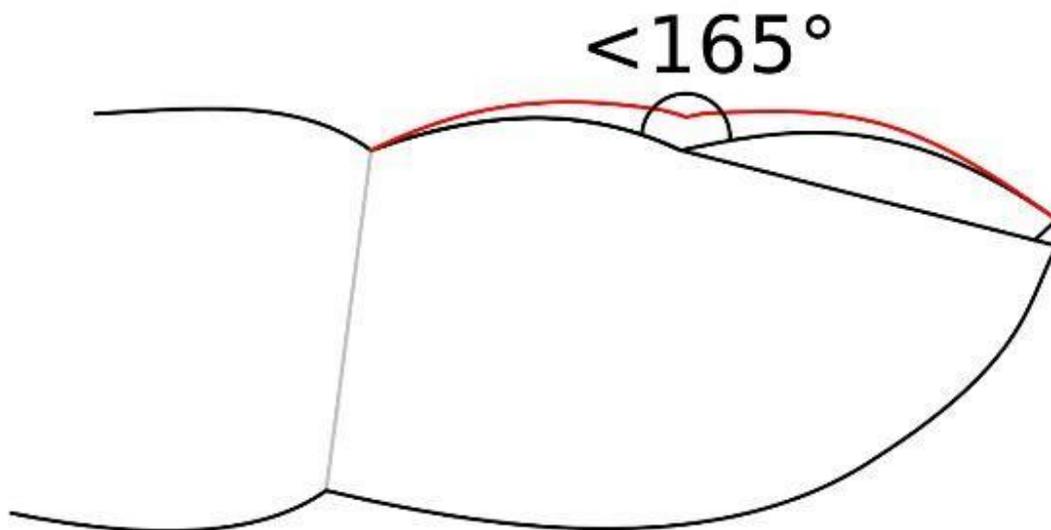


Figure 1: Clubbing of the fingernail. The red line shows the outline of a clubbed nail (Credit: *Clubbing* by User:Jfdwolff is licensed under CC-BY-SA-3.0)



Figure 2: An example of digital clubbing, and deformation of the fingers (Credit: *Acropaquia* by User:Desherinka is licensed under CC-BY-SA 4.0)

Essential History

Ask about:

- Respiratory symptoms
 - Cough
 - Is it dry or moist / wet
 - Duration
 - Chest pain
 - Haemoptysis
 - Breathlessness
- Gastrointestinal symptoms
 - Constipation
 - Diarrhoea
 - Blood in stools
 - Difficulty swallowing
 - Abdominal pain

- Jaundice
- Cardiac symptoms
 - Breathlessness
- Feeding difficulty
- Infection
- Weight loss (documented)
- Swellings

‘Red Flag’ Symptoms and Signs

Ask about:

- Weight loss
- Fever
- Swellings (eg, lymph nodes)
- Itching and / or night sweats
- Diarrhoea
 - Especially nocturnal
 - Inflammatory bowel disease (IBD)
- Shortness of breath
- Cough
- Colour of sputum

Look for:

- Lymphadenopathy
- Cyanosis
- High temperature
- Respiratory distress
 - Crepitations
 - Reduced air entry
- Sino-nasal disease
- Pallor
- Oedema
- Jaundice
 - Signs of liver failure
- Thyroid enlargement

Differential Diagnosis / Conditions

While there are multiple causes of clubbing, this is not an exhaustive list and not every patient with each of these conditions will have clubbing.

Primary clubbing (idiopathic or inherited)

- Pachydermoperiostosis: It is a rare genetic disorder which affects skin and bones
 - Skin signs / symptoms: pachydermia
 - Thickening of the facial skin and / or scalp
 - Bone signs / symptoms: periostosis
 - Swelling of periarticular tissue / sub periosteal new bone formation
- Primary hypertrophic osteoarthropathy
- Familial clubbing

Secondary clubbing

- Cirrhosis
- Pulmonary
 - Chronic suppurative lung disease
 - Bronchiectasis
 - Empyema
 - Lung abscess
 - Cystic fibrosis
 - Complicated tuberculosis
 - Cavity / abscess
 - Childhood Interstitial lung disease (chILD)
 - Arteriovenous (AV) fistula / intrapulmonary shunts
- Cardiac
 - Bacterial endocarditis
 - Cyanotic congenital heart disease
 - Other causes of right-to-left shunting
- Gastrointestinal
 - Coeliac disease
 - Crohn's disease
 - Ulcerative colitis
- Malignancy
 - Hodgkin's disease
- Endocrine
 - Acromegaly
 - Hyperparathyroidism
 - Hyperthyroidism
- Skin
 - Palmoplantar keratoderma

Pseudo clubbing

- Over curvature of nails in both axis with preservation of angle between the nail fold and plate
 - Chronic kidney disease
 - Hyperparathyroidism
 - Sarcoidosis
 - Scleroderma
 - Subungual haematoma

Investigations

To be undertaken by non-specialist practitioners (eg, General Practitioner (GP) Team(s)):

- Blood chemistry including:
 - Liver function tests (LFT)
 - Thyroid function tests (TFT)
 - Bone profile
 - C-reactive protein (CRP)
 - Full blood count (FBC)
 - Erythrocyte sedimentation rate (ESR)
- If the patient has respiratory symptoms consider the following (after discussion with specialist)
 - Chest X-ray
 - Sputum culture
 - Mantoux test
 - Interferon gamma release assay
 - Oxygen saturation
- If the patient has gastrointestinal symptoms consider:
 - Coeliac screen

To be undertaken by paediatric specialists (eg, General Paediatrician, Respiratory Paediatrician, Gastroenterology / Cardiology / Endocrinology / Oncology Team(s)):

- Investigations to be based upon the clinical presentation

Treatment Approach

To be undertaken by non-specialist practitioners (eg, General Practitioner (GP) Team(s)) or paediatric specialists (eg, General Paediatrician, Respiratory Paediatrician / Gastroenterology / Cardiology / Endocrinology / Oncology / Dermatology Team(s)):

- There is no specific treatment for clubbing
 - If the underlying cause is treatable / treated, the condition is likely to persist

When to Refer

Refer to a paediatric specialist (eg, Oncology / Respiratory / Cardiology / Gastroenterology Team(s) / Infectious Disease Specialist) if:

- Any 'red flag' symptoms
- If advice is needed to help investigate potential underlying causes or symptoms

'Safety Netting' Advice

- If 'red flag' signs and symptoms, or if the patient is more unwell, Medical Team should be contacted urgently, even if there may not have been a clear cause initially

Patient / Carer Information

**Please note: whilst these resources have been developed to a high standard they may not be specific to children.*

- [Bronchiectasis](#) (Web page), the NHS website
- [Clubbing](#) (Web page), Patient
- [Crohn's Disease](#) (Web page), Patient
- [Cystic Fibrosis](#) (Web page), Patient
- [Heart Disease](#) (Web page), Patient
- [Hodgkin's Lymphoma](#) (Web page), Patient
- [Hyperparathyroidism](#) (Web page), Patient
- [Hyperthyroidism](#) (Web page), Patient
- [Idiopathic Pulmonary Fibrosis](#) (Web page), Patient
- [Tuberculosis](#) (Web page), Patient
- [Ulcerative Colitis](#) (Web page), Patient

Resources

National Clinical Guidance

[Suspected cancer: recognition and referral](#) (Web page), NICE guideline NG12, National Institute for Health and Care Excellence

[Cystic fibrosis: diagnosis and management](#) (Web page), NICE guideline NG78, National Institute for Health and Care Excellence

[Tuberculosis](#) (Web page), NICE guideline NG33, National Institute for Health and Care Excellence

[Coeliac disease: recognition, assessment and management](#) (Web page), NICE guideline NG20, National Institute for Health and Care Excellence

Suggested Resources

**Please note: these resources include links to external websites. These resources may not have national accreditation and therefore PCO UK cannot guarantee the accuracy of the content.*

[Nail abnormalities](#) (Web page), the NHS website

Dickenson C, Martin J. Megakaryocytes and platelet clumps as the cause of finger clubbing. *Lancet* 1987;19(2):1434–1435 [[PubMed](#)]

Sarkar M, Mahesh D, *et al.* Digital clubbing. *Lung India*. 2012;29(4):354–362 [[PubMed](#)]

Schamroth L. Personal experience. *S Afr Med J*. 1976;50:297–300 [[PubMed](#)]

Yap FY, Skalski MR, *et al.* Hypertrophic osteoarthropathy: clinical and imaging features. *Radiographics* 2017;37:157–195 [[PubMed](#)]

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