



Idiopathic Clubbing - A Typical Presentation

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Fig. 1 : Idiopathic Clubbing

A 22 year-old engineer student, resident of Dharma of Midnapur (WB), had marked swelling of the terminal digits since early adolescence (he first noticed swelling in his early adolescence and increases its size with age as per history)(Figure 1). Other members of his family did not have this finding. He did not have cyanosis, was not limited in terms of physical activity, and had no history of cardiac disease, lung disease, or inflammatory bowel disease. On examination, cardiac and pulmonary findings were normal, along with lung-function tests and laboratory tests, including measurements of Liver-function test and Thyroid function test were normal. Electrocardiography and chest-radiography revealed no abnormalities. On Tread Mill Test, the patient reached a workload of 10METs. Two dimensional echocardiography with colour-doppler study of heart and HR-CT and CE-CT of chest revealed no abnormalities.

Digital clubbing is classified into:

1. *primary*,
 - i. idiopathic
 - ii. hereditary ie, Touraine-Solente-Gole syndrome¹ and
2. *secondary*,
 - i. cardiac-SBE and Fallots tetralogy (clubbing with cyanosis)
 - ii. respiratory-bronchogenic ca (squamous cell type), suppurative (bronchiectasis, lung abscessandempyema), ILD and mesothelioma
 - iii. biliary cirrhosis
 - iv. IBD. Digital clubbing may be symmetric bilaterally, or it may be unilateral (axillary artery aneurysm and bronchial AV aneurysm) or involve a single digit (trauma, gout and sarcoidosis). Differential clubbing means clubbing in the toes, not in fingers, seen in PDA with reverse shunt, coarctation of abdominal aorta. Anatomic considerations, such as the classic measurement of the Lovibond angle (angle formed between the nail bed and adjacent skin fold, is about 160 degree) or the more recently derived index of nail curvature by Goyal et al.²

Actual mechanisms of clubbing is unknown. But there are possible hypotheses, viz: a) arterial hypoxaemia, b) bradykinin and prostaglandins which cause vasodilatation, c) PDGF released from megakaryocyte and platelet emboli in nail bed which causes increased capillary permeability, fibroblastic activity and arterial smooth muscle hyperplasia in the nails.

Grades of clubbing: 1. Fluctuation is positive due to increased proliferation of cells at nail base with obliteration of onychodermal angle. 2. Grade 1 + increased AP and transverse diameters of nails. 3. Grade 2 + increase in pulp tissue resulting in Parrot's beak or drumstick appearance. 4. Grade 3+ Hypertrophic osteoarthropathy.

References

1. Uppal S, Diggle CP, Car Rim, et al. "Mutation in 15-hydroxyprostaglandin dehydrogenase cause primary hypertrophic osteoarthropathy". *Nat Genet* 2008;40:789-93.
2. Goyal S, Griffiths AD, Omarouyache S, Mohammedi R. An improved method of studying fingernail morphometry: application to the early detection of finger nail clubbing. *J Am Acad Dermatol* 1998;39:640-2.

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