

## Case Report

# Finger Clubbing in a Patient of Myelofibrosis with Renal Cell Carcinoma

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### Abstract

Finger clubbing has many well known causes. We present a rare association of finger clubbing in patient with myelofibrosis and non metastatic renal cell carcinoma, with no evidence of these well known.

### Introduction

Finger clubbing, regarded as the oldest clinical sign of medicine, was first described by Hippocrates more than 2500 years ago. It has many well known causes including malignant neoplasms, wherein it arises as a distant epiphenomenon.<sup>1,2</sup> We present a patient of finger clubbing associated with myelofibrosis and renal cell carcinoma in absence of these well known causes.

### Case Report

A 57 years old non smoker, non-alcoholic Asian man diagnosed as having myelofibrosis for the last 28 years, presented to us with complaints of abdominal discomfort and easy fatigability for the past few months. On examination we noticed marked finger clubbing, pallor and massive splenomegaly. He told us that his finger tips got enlarged and abnormally shaped for the past several years (Figure 1). The enlargement was painless. There was no history of fever, jaundice, and chronic diarrhea, blood in stools, chronic cough or hemoptysis. There was no history of cardiac disease. No family history of clubbing was present. He had no thyromegaly and eye examination was normal. He had no icterus, cyanosis, or lymphadenopathy. His respiratory and cardiovascular examinations were unremarkable. Investigations revealed haemoglobin level of 6.2g/dl, total leucocyte count of 3500cell/cumm with normal differential count and a platelet count of 2.11 lakh/cumm. Peripheral blood smear showed hypochromic red cells, tear drop cells, anisopoikilocytosis and few macro-ovalocytes. Bone marrow examination revealed diffuse marrow fibrosis and clustered megakaryoblasts. His blood sugar, renal and liver function tests were within normal limits. His Free T3, Free T4, TSH and anti-TPO antibody levels were within normal range. Ultrasonography (Figure 2) and Computed tomography (CT) scans of abdomen showed normal liver, massive splenomegaly, enlarged splenic and portal veins with varicosities in portal bed and presence of portal collaterals. It also revealed a left renal mass. Radiograph and CT scan of his chest were normal. An upper Gastro-intestinal endoscopy showed no varices. Radiograph of both his hands and forearms showed loss of corticomedullary differentiation of lower and mid portion of radius and ulna with increased density and associated periosteal thickening, with these changes present in few metacarpal bones also (Figure 3). Patient underwent left sided nephrectomy. Histopathology revealed it to be renal

cell carcinoma. A diagnosis of myelofibrosis with non-cirrhotic portal hypertension and a non metastatic renal cell carcinoma was made.

### Discussion

Finger clubbing is thought to be arising due to hypervascularity, opening of anastomotic channels in the nail bed.<sup>2,3</sup> It may be seen alone or as a part of hypertrophic osteoarthropathy which includes periostitis and arthritis. Many theories have attempted to explain appearance of this sign but few have persisted.<sup>1</sup> The most popular theory is that normally megakaryocytes continually emerge from bone marrow but are trapped by pulmonary capillary bed. In the disorders in which the megakaryocytes bypass the lung capillaries or in which large platelet clumps form on the left side of heart or in which there tends to be chronic platelet excess (e.g. chronic inflammatory bowel disease), these large megakaryocyte fragments get impacted at most distal sites of systemic circulation, releasing PDGF and other substances that induce clubbing. Vascular endothelial growth factor (VEGF), a platelet derived factor produced abnormally by malignant tumors for fostering their uncontrolled growth, could gain direct access to systemic circulation and stimulate clubbing.<sup>2,3,4</sup>

Finger clubbing may be hereditary, idiopathic or acquired and associated with a variety of disorders including cyanotic congenital heart disease, infective endocarditis and a variety of pulmonary conditions (primary and metastatic lung cancer, bronchiectasis, lung abscess, empyema, cystic fibrosis and mesothelioma) as well as with some gastrointestinal disease (Inflammatory bowel disease, cirrhosis, esophageal, liver and bowel neoplasia). or a rare manifestation of thyrotoxic Grave's disease.<sup>1,3,5</sup> In our patient there was no clinical or laboratory evidence of these well known causes of clubbing. And since the clubbing in the patient was acquired and there was no family history of clubbing we can infer that clubbing in our patient was due to either or both of two conditions which patient was suffering from, viz myelofibrosis with non cirrhotic portal hypertension and renal cell carcinoma.

Association of finger clubbing with myelofibrosis is very rare<sup>4</sup> and that with renal cell carcinoma (RCC) is still rarer. Cases of RCC with pulmonary metastasis associated with finger clubbing have been described,<sup>6</sup> but there has been no case report of RCC without metastasis associated with finger clubbing described in literature.

Almost every type of malignancy has the potential to produce hormones or cytokines, including VEGF, a platelet derived factor, which can produce distant epiphenomenon, like finger clubbing

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**Fig. 1 :** photograph of both hands of a man, who had myelofibrosis with renal cell carcinoma, showing clubbing of all fingers.



**Fig. 2 :** Ultrasound of abdomen showing enlarged portal veins with varicosities in portal bed and presence of portal collaterals. and hypertrophic pulmonary osteoarthropathy produced by non-small cell carcinoma lung.<sup>2,6</sup> Other malignancies described to produce finger clubbing are those of digestive tract.<sup>1</sup> In our patient clubbing was present much before the actual diagnosis of RCC. Therefore myelofibrosis is more likely to be linked with finger clubbing than it is with RCC. But then manifestation due to humoral substance released from the malignancies can present much before the actual malignancy presents.<sup>5</sup>

## Conclusion

In conclusion, finger clubbing should always be looked for as a part of routine general examination, and if its cause is not obvious patient should be evaluated for or observed for development of myelofibrosis and occult malignancy as it may



**Fig. 3 :** X-ray (anteroposterior view) of both hands and forearms showing loss of corticomedullary differentiation of lower and mid portion of radius and ulna with increased density and associated periosteal thickening, with these changes present in few metacarpal bones also.

be an early clue to their presence, particularly in a patient with resistant anemia of any severity

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