Beaded pulmonary artery sign

Sir,

We would like to highlight an important forgotten sign on chest computed tomography (CT) known as the "beaded pulmonary artery" sign. This sign is diagnostic of pulmonary tumor emboli also known as pulmonary tumor thrombotic microangiopathy (PTTM) in a given clinical context.[1] PTTM is a clinic pathologic entity in which the tumor cells embolize to the pulmonary vasculature leading to widespread tumor emboli with fibrocellular intimal proliferation and thrombus formation in small pulmonary arteries and arterioles in patients with metastatic carcinomas. The clinical course is very rapid, and antemortem diagnosis is usually difficult, particularly in patients without a cancer history. Gastric cancer is the most commonly associated malignancy. Other commonly associated malignancies include those of the kidneys, lung, breast, colon, and pancreas.

Contrast-enhanced chest CT reveals dilated and beaded pulmonary arteries, diffuse ill-defined centrilobular micronodules, and patchy peribronchovascular ground-glass opacities [Figures 1 and 2].[2] Dilated pulmonary arteries are due to intravascular and perivascular tumor within the medium-to-small pulmonary arteries. Small, peripheral areas of ground-glass opacities distal to dilated beaded pulmonary arteries suggest small pulmonary infarcts. This sign should be distinguished from beaded septum and tubular opacities seen in bronchiectasis and pulmonary arteriovenous malformation. The beaded septum sign is seen in lymphangitic carcinomatosis due to spread of tumor in pulmonary capillaries, lymphatic vessels, and septal interstitium.[3]

We wish to emphasize that both clinicians and radiologists who are regularly seeing and interpreting chest CT scans should be aware of this sign.

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Conflicts of interest
There are no conflicts of interest.

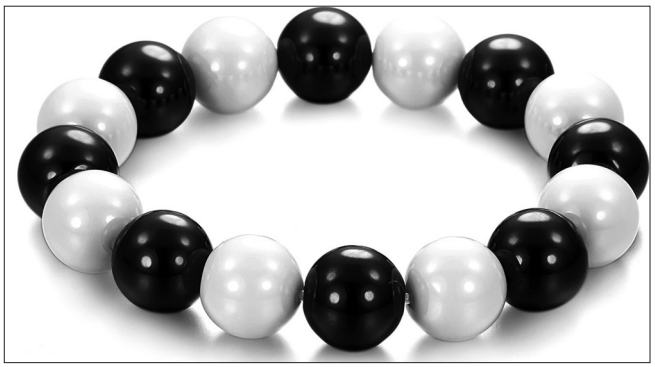

Figure 1: Illustration showing necklace of beads

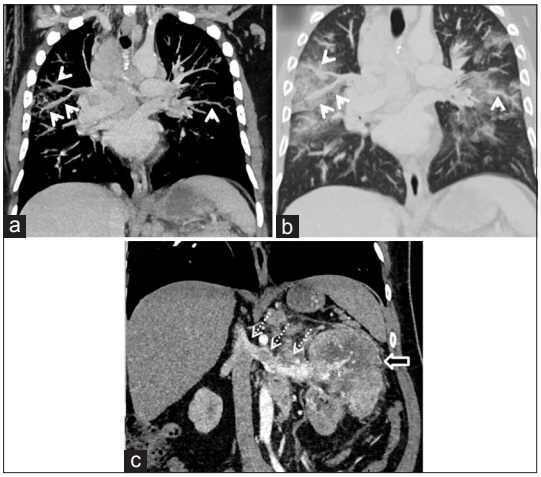

Figure 2: (a and b) Coronal reformatted contrast-enhanced computed tomography scan images showing irregularly dilated and beaded segmental pulmonary arteries (arrowheads) reaching up to the periphery with surrounding small pleural-based infarcts (c) coronal computed tomography scan image showing left renal cell carcinoma (arrow) with tumoral thrombus (dashed arrows) in the left renal vein extending into the inferior vena cava

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