H85 An Interesting Case of a Pregnant Female With Systemic Calcification and Thromboemboli

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Learning Overview: After attending this presentation, attendees will gain awareness of an interesting case of systemic calcification in a pregnant female examined at the Tarrant County Medical Examiner's Office.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by educating medical examiners about possible etiologies of systemic calcification as seen in a pregnant female with no known medical history who died as a result of pulmonary thromboemboli.

On February 3, 2018, a complete autopsy was performed on a 37-year-old White female who was found unresponsive in the bedroom at a private residence. She had no known medical history except for being approximately six months pregnant with recent complaints of feeling ill with cough and vomiting. She had not had any pre-natal care and had only used an unknown walk-in clinic for minor complaints. Reportedly, marijuana pipes were found in the residence, though she had no history of substance abuse.

The autopsy was significant for an intrauterine pregnancy with placenta previa. The fetus was male with no congenital anomalies, consistent with 4–5 months gestational age by weights and measurements. The uterus showed a large fundic leiomyoma, 18cm x 18cm x 15cm, as well as multiple additional smaller leiomyomata throughout the myometrium. There was a 14cm x 10cm x 6cm left ovarian chocolate cyst with a 6cm x 3cm x 2cm lobulated tumor in the wall that corresponded to decidualized tissue on histology. Decidualized tissue was also identified in the left fallopian tube that appeared distorted and markedly thickened grossly.

In the left lower lobe of the lung, there was a large thromboembolus. The kidneys were enlarged and pale, weighing 345gms each. Numerous vascular thrombi in varying stages of organization were noted bilaterally in the hilum and throughout the parenchyma. The right thyroid was nodular, scarred, and calcified. A 5mm right adrenal cortical adenoma was present. There was a 10cm x 7cm x 6cm thin-walled cyst on the right pericardium containing serous fluid. A small posterior left parietal osteoma was present.

On histologic examination, there were diffuse vascular calcifications in multiple organs, including the heart, liver, and spleen. The lungs showed calcification of the bronchial basement membranes, and there was calcification of the mucosal basement membranes in the stomach and pancreas. In the liver, there was calcification of the sinusoidal lining. In the heart, there was also calcification of individual myocytes. The thyroid nodule was consistent with a papillary carcinoma. Multiple additional small organizing thromboemboli were identified on histology throughout the lungs.

Review of the literature identified the differential diagnosis of diffuse vascular calcification to be very wide, including common and rare disorders ranging from premature atherosclerosis, diabetes, parathyroid disorders, chronic kidney disease, uremia, systemic lupus erythematosus, hyperphosphatemia, pseudoxanthoma elasticum, Marfan's syndrome, liver disease, and hyperparathyroidism.[1] The patterns of vascular calcifications vary among these conditions; however, none of them have been reported to have cardiac myocyte or hepatic sinusoid calcifications. A case report of acute fatty liver of pregnancy developing massive intrahepatic calcification indicates that it is usually associated with infectious, vascular, or neoplastic lesions in the liver[2]. In pregnancy, it has been reported to be associated with HELLP syndrome.[2] Cardiac fibroblasts can adopt an osteoblast cell-like fate contributing to heart muscle calcification.[3] No reports of a case with the constellation of findings in this death were found. A similar picture can be seen in idiopathic infantile arterial calcinosis. No reports of a case with the constellation of findings in this death were found.

In summary, this is an interesting case of diffuse systemic calcification of unknown etiology in a pregnant woman who died as a result of pulmonary thromboemboli and had thrombi in the kidneys. The association is uncertain and her death, in the absence of the thromboemboli, certainly could have been attributed to the cardiac myocyte calcification and an arrhythmia.

Reference(s):

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2. K.J. Bhat, R. Shovkat, H.J. Samoon. Postpartum Acute Liver Dysfunction: A Case of Acute Fatty Liver of Pregnancy Developing Massive Intrahepatic Calcification. *Gastroenterology Research* 8 no. 6 (Dec 2015): 313-315.
3. I.C.L. Pillai, S. Li, M. Romay, L. Lam, Y. Lu, J. Huang, N. Dillard, M. Zemanova, L. Rubbi. Y. Wang, et al. Cardiac Fibroblasts Adopt Osteogenic Fates and Can Be Targeted to Attenuate Pathological Heart Calcification. *Cell Stem Cell Journal* 20 no. 2 (Feb 2, 2017): 218-232.

Systemic Calcification, Pregnancy, Pulmonary Thromboemboli