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Pulmonary and Renal Tuberculosis of End-Stage Diagnosed At Same Time - A Rare In Occurrence

Pulmonary Medicine

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ABSTRACT

Tuberculosis (TB) is a current public health problem, remaining the most common worldwide cause of mortality from infectious disease. Recent studies indicate that genitourinary TB is the third most common form of extra-pulmonary disease. We report a case of 24-year-old female patient who presented with shortness of breath associated with cough and expectoration, also dysuria and recurrent urinary tract infection. On diagnosis found to have pulmonary and renal tuberculosis. Her right kidney was non-functional in view nephrectomy was done. Sample after nephrectomy shown strong background of renal tuberculosis. As per the previous literatures it was found that pulmonary and renal tuberculosis getting diagnosed at same time is very rare in occurrence.

KEYWORDS:

Renal Tuberculosis, Pulmonary Tuberculosis, Unilateral Hydroureteric Nephrosis, ATT.

INTRODUCTION:

Tuberculosis (TB) is a current public health problem, remaining the most common worldwide cause of mortality from infectious disease, with an estimated global incidence of 8 to 10 million/year. [1,2,3,4,5] The difficultly in diagnosing extra pulmonary tuberculosis can be attributed to the poor access of disseminated lesions, the fact of patients being usually paucibacillary (very often causing a negative smear), histopathologic finding are not pathognomonic (granulomatous reaction can be found in other diseases) and there are lower rates of bacteriological positivity (only in a quarter of the cases).[6]

Most extra-pulmonary forms of TB are seen in organs without optimum conditions for bacterial growth, generally with an insidious onset and a chronic evolution.[6] Recent studies indicate that genitourinary TB is the third most common form of extra-pulmonary disease after peripheral lymphadenopathy.[1,3,7]

The occurrence of extra-pulmonary TB is not common in HIV-negative patients, and the development of end-stage kidney disease caused by TB is even less common, being rarely reported in medical literature.[8,1,9] Following the patient's consent, we report a case of 24-year-old female patient who presented with shortness of breath associated with cough and expectoration, also dysuria and recurrent urinary tract infection. On diagnosis found to have pulmonary and renal tuberculosis. Her right kidney was non-functional in view nephrectomy was done. Sample after nephrectomy shown strong background of renal tuberculosis.

CASE REPORT:

A 24-year-old female patient walked into our emergency room at night with complaints of increased shortness of breath – grade – II associated with cough and expectorations. Had history of dysuria and recurrent urinary tract infection. On examination she was found with saturation of 88% on room air and auscultation findings of bilateral crepts and wheeze. She was relieved of her present symptoms and was admitted for further evaluation. Chest X-ray showed consolidation and sputum for AFB 1+. High Resolution CT scan Chest showed well defined thick wall cavitatory lesion measuring 1.65 X 2.22cm with adjacent multiple foci of consolidation with air bronchogram and tiny nodular opacities in apicoposterior segment of left upper lobe, multiple patches of noduloconsolidation with few tiny centrilobe nodular opacities in apical and anterior segment of both upper lobes.

Figure-1: Showing CT scan Chest with well defined thick wall cavitatory lesion measuring 1.65 X 2.22cm with adjacent multiple foci of consolidation with air bronchogram and tiny nodular opacities in apicoposterior segment of left upper lobe, multiple patches of noduloconsolidation with few tiny centrilobe nodular opacities in apical and anterior segment of both upper lobes.

With this finding she was started on Antituberculosis therapy. After starting ATT her liver function tests were raised for which gastroenterologist consultation in view of ATT induced hepatotoxicity. Was advised to continue ATT with Tablet. PYZINA on hold. In view of her dysuria and urinary tract infection nephrologist opinion and USG done showed gross right sided hydronephrosis with complete loss of cortex with echogenic contents within it – chronic hydronephrosis with possibilities of super added infection. Later IVP done showed absence of nephrogarm with non-visualisation of PCS and ureter even after 24-hours of contrast injection in right kidney - ? Nonfunctional right kidney. Left kidney, collecting system and ureter to be normal.

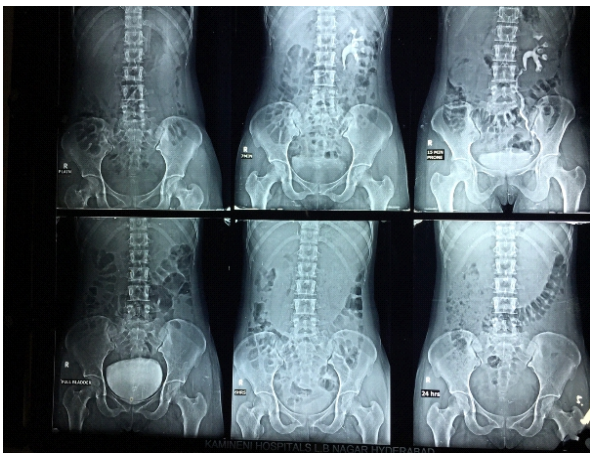

Figure-2: IVP showing absence of nephrogram with non-visualisation of PCS and ureter even after 24-hours of contrast injection in right kidney - ? Nonfunctional right kidney. Left kidney, collecting system and ureter to be normal.

Renogram of right kidney showed grossly hydronephric with poor functional stateand left kidney to be normal with cortical function and no obstruction.

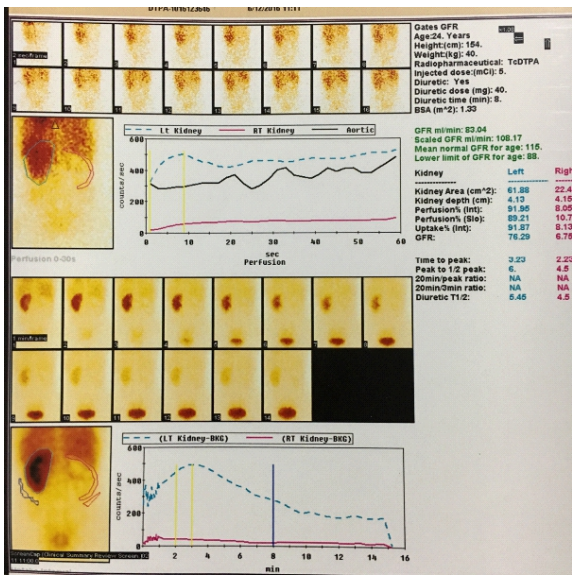

Figure-3: DTPA Renogram - right kidney: grossly hydronephric with poor functional state, left kidney: normal cortical function with no obstruction.

Right kidney nephrectomy was planned and tissue was send for histopathological examination. HPE of right kidney multiple sections studies revealed renal parenchymal with partially effaced architecture showing many granuloma comprising of epitheloid histiocytes, langhans type multinucleate giant cells along large areas of necrosis. In preserved areas tubules, glomeruli and vessels show no significant pathology. Interstitium show and plasma cells. Pelvic epithelium lining and resected end ureter epithelium lining are replaced by necrotic granulomas. No evidence of any malignancy in sections studied. She was discharged with stable condition with advise of taking Tablet INH 300mg Once Daily, before breakfast, Tablet Rifampicin 450mg Once Daily before breakfast and Tablet Ethambutol 800mg Once Daily after lunch, with a follow-up monthly.

DISCUSSION:

During the initial primary pulmonary infection, the M. tuberculosis organisms multiply and evoke an in ammatory reaction. As there is still little host defense to the multiplication of the bacteria at this stage, rapid spreading occurs, through the lymphatics and blood stream. Within about four weeks, however, the rate of multiplication decreases as the host response develops and the dissemination ceases.[10] Genitourinary TB is usually caused by metastatic spread of organisms through the blood stream during the initial infection. Active disease results from the reactivation of the initial infection.[10]

In this case, the patient had unilateral i.e. right side involvement of kidney whereas the left kidney was normal in its function and structure. Tuberculosis may involve the kidney as part of generalised disseminated infection or as localised genitourinary disease. The kidney is usually infected by the hematogenous spread of bacilli from the focus of infection in the lungs and/or bowel. Clinically, renal tuberculosis usually presents unilaterally, but post mortem studies showed that the disease was often bilateral. The healing process results in membranous tissue and calcium salts being deposited, producing the classic calci ed lesion.[10]

Our patient had shortness of breath with cough and expectoration for which AFB came positive and was started on ATT. As she had dysuria and had recurrent UTI nephrologist opinion was taken and was found to have nonfunctional right kidney for which nephrectomy was done. Sample sent shown strong background of renal tuberculosis.

The diagnosis of TB on images of the urinary tract depends on the stage of the infection. Tubercular granulomas in the renal pyramids coalesce to form ulcers which discharge mycobacteria and pus in the urine. Untreated lesions enlarge and a tubercular abscess may form in the parenchyma. Later on, perinephric abscess is formed and the kidney is replaced by caseous material (“putty kidney”) which may become calcified (“cement kidney”) and nonfunctional leading to renal failure.[2]

Our patient had renal involvement for which USG done showed gross right sided hydronephrosis with complete loss of cortex with echogenic contents within it – chronic hydronephrosis with possibilities of super added infection. Later IVP done showed absence of nephrogarm with non-visualisation of PCS and ureter even after 24-hours of contrast injection in right kidney - ? Nonfunctional right kidney. Left kidney, collecting system and ureter to be normal.

The most valuable radiologic feature of genitourinary TB is the multiplicity of abnormal ndings. Whenever a pattern of chronic renal in ammatory disease is recognized, particularly in the setting of periureteric or peripelvic brosis, tuberculosis must be considered.[9] The patient was managed with right nephrectomy with putting her on ATT as per the RNTCP of India. Was discharged in stable condition with monthly follow up.

CONCLUSION:

In summary, renal TB is an important cause of kidney disease, mainly in tropical areas of the globe, and can lead to end-stage renal disease if not diagnosed early and treated correctly. Making a diagnosis of pulmonary tuberculosis and leaving behind other extra pulmonary causes will never beneficial to doctors as well as patient. Diagnosing extra pulmonary causes and managing it at the earliest will help the patient recover better.

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