

Xanthogranulomatous Pyelonephritis Complicated by Emphysematous Pyelonephritis in Lepra Reaction Patient – a Very Rare Occurrence

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We report a case of 30-year-old male with recurrent chronic ENL reaction who reported to CLTRI with a one-week history of vague abdominal pain, fever, vomiting, and diarrhea. Abdominal computed tomography showed characteristic pictures of Xanthogranulomatous pyelonephritis. The patient was managed for pyelonephritis with antibiotics based on the sensitivity pattern. After a month, the patient developed similar complaints with swelling in the renal angle and the subsequent CT scan showed features suggestive of right side emphysematous pyelonephritis with perirenal abscess extending posteriorly. Because the patient's general condition was poor, an initial incision and drainage of the abscess were made and a drainage tube was kept under the cover of sensitive intravenous antibiotics. The patient was planned for follow-up CT and nephrectomy once the general conditions improved. Unfortunately, the patient succumbed to death due to septicemia. This case suggests that Xanthogranulomatous pyelonephritis can be complicated by emphysematous pyelonephritis. This is the first such case in literature documented in a recurrent lepra reaction patient.

Keywords : ENL, steroids, Diabetes, Immunosuppression, Pyelonephritis

Introduction

Erythema Nodosum Leprosum (ENL) is a serious immunological mediated reaction in lepromatous (LL) and borderline lepromatous (BL) type of leprosy. The most common drugs used for treating ENL are corticosteroids (Prednisolone),

Clofazimine and Thalidomide (Pugazhenthana et al 2015). Diabetes induced by prolonged steroid intake in lepra reactions is a serious complication that requires careful clinical management (Papang et al 2009).

Diabetes mellitus is associated with nephropathy.

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It is also associated with increased risk of certain complicated urinary tract infections such as emphysematous cystitis, emphysematous pyelitis, emphysematous pyelonephritis (Eid and Salam 2010), Xanthogranulomatous pyelonephritis, renal/perirenal abscess, and renal papillary necrosis (Hakeem et al 2009). These conditions require prompt evaluation and timely management (Mnif et al 2013), otherwise may lead to serious life situations.

Here we report a case of the rare combination of Xanthogranulomatous pyelonephritis and Emphysematous pyelonephritis (EPN) in a chronic recurrent lepra reaction patient.

Case report

A 30-year-old, male, chronic recurrent lepra reaction patient, getting treatment from from 2009 to 2015 from various sources was admitted in Central Leprosy Teaching and Research Institute

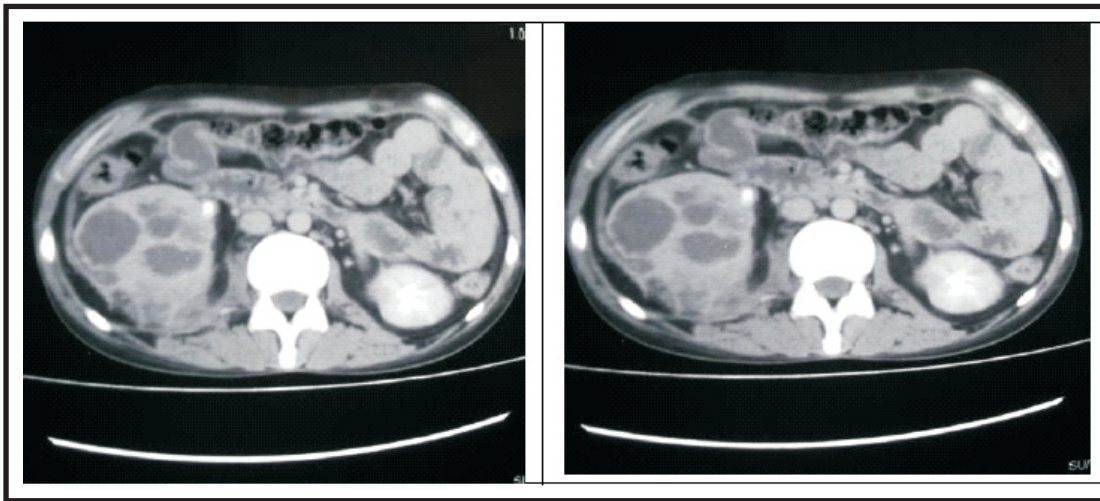


Fig 1 : CT scan of the abdomen and pelvis showing paw sign appearance characteristics of Xanthogranulomatous pyelonephritis.

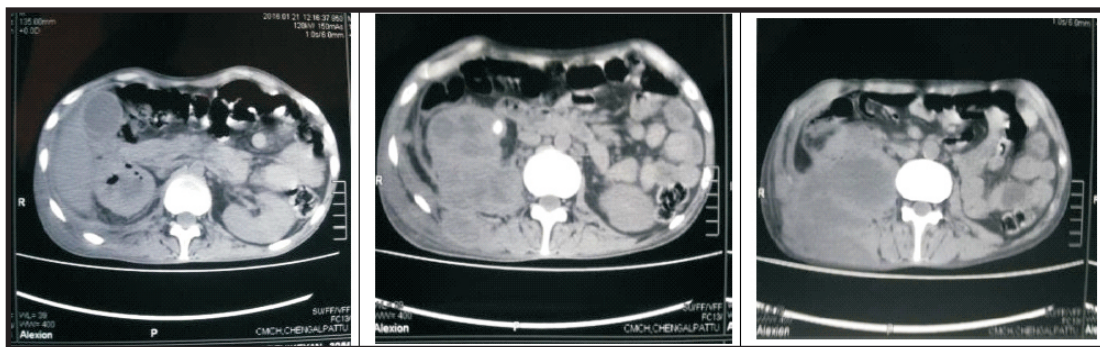


Fig 2 : CT scan of the abdomen and pelvis taken 1 month later showing gas bubbles in the renal parenchyma characteristics of Emphysematous pyelonephritis and last image showing perirenal abscess extending posteriorly.

Table 1 : Results of routine investigations done in the patient with renal complications in February 2016

Parameters	Values/others	Remarks
Hemoglobin	8.5gm%	Reduced
Total WBC	11,300 cells/cu mm	Increased
Differential counts		
Polymorphs	97%	Increased
Eosinophils	0%	Reduced
Lymphocytes	2%	Reduced
Monocytes	1%	Reduced
Basophils	0%	Normal
Erythrocyte sedimentation rate	20mm(1hr)	Increased
Random blood sugar	89 mg/dl	Normal (With Insulin)
Blood urea	69 mg/dl	Increased
Blood urea nitrogen	32.2 mg/dl	Increased
Creatinine	1.1 mg/dl	Normal
Total bilirubin	1.2 mg/dl	Increased
Direct	0.3 mg/dl	Normal
Indirect	0.9 mg/dl	Increased
SGOT	20lu/l	Normal
SGPT	25lu/l	Normal
ALP	29lu/l	Normal
Total protein	6.7 g/dl	Normal
Albumin	3.7 g/dl	Normal
Globulin	3.0 g/dl	Normal
HIV	Negative	Normal
ECG	Normal	Normal
ABDOMEN/PELVIS	USG(20/01/2016) Right kidney - 10 x 5.5 cm enlarged with hypo echoic area Left kidney 10.8 x 4.7 cm echos, normal 7 X 4.6 cm heteroechoic collection noted in right psoas area Bladder normal CT KUB(21/01/2016)	Right pyelonephritis with perirenal abscess Complicated right emphysematous pyelonephritis stage 4
Culture & sensitivity of the pus drained	Frank pus from perirenal abscess Klebsiella isolated	Piperacillin/Tazobactam 4.5 g IV q6-8hr

(CLTRI) for fever, nausea, vomiting, diarrhea and vague abdominal pain. Clinical examination revealed a highly emaciated toxic patient, with extreme tenderness over the right renal angle

with generalized guarding. The patient was referred to nearby Government Medical College hospital for further evaluation and management. He was diagnosed to have right sided Xantho-

granulomatous pyelonephritis on the basis of contrast-enhanced computed tomography of the abdomen and pelvis (Fig 1). He was then treated for the pyelonephritis with the urine culture sensitive antibiotics and was planned for nephrectomy once the general condition improves. The patient improved initially, after the conservative management. However, later, after a month the patient developed similar complaints with severe chills and rigor, throbbing abdominal pain and a local swelling in the right renal angle. Preliminary blood investigations were done which were largely normal (Table 1). An emergency ultra-sonogram and CT scan revealed right sided emphysematous pyelonephritis with perirenal abscess extending posteriorly (Fig 2). Initial management of incision and drainage of the perirenal abscess was undertaken on a priority basis because of his poor general condition. Around 2000 ml of pus was drained. A combination of four antibiotics were given on the basis of pus culture reports (Table 1). The patient was advised for a follow up CT scan and was planned for right-sided nephrectomy once the general condition improves. The patient was also transfused a pint of packed cell volume of RBCs. Unfortunately, after 15 days the patient succumbed to death due to septicemia. The family members refused for an autopsy. So we could not do any histopathological examination of the kidney.

Discussion

This is the first case in our knowledge documented in literature with Xantho-granulomatous pyelonephritis complicated by emphysematous pyelonephritis in a released from treatment (RFT) leprosy patient who had taken steroids in different dosages for a long period of time for treatment of leprosy reaction. This case is of importance as the patient was a young male who

was diagnosed as a case of leprosy in 2008 and treated with MDT. He started to have Type 2 reactional episodes and anti-reaction treatment was instituted in 2009 along with the continuing conventional MBMDT (A). He subsequently died in 2016 because of the complication of the drugs used for suppressing the inflammation in the leprosy and resulting uncontrollable septicemia.

The patient developed lepra Type 2 ENL reaction in 2009 for which he was treated with varying doses of injectable/oral steroids, Clofazimine and also Thalidomide. He was managed for a very long period between 2009-2015 both as inpatient and outpatient department at the clinical division of CLTRI. During the course of management of reaction, the patient developed diabetes in 2012 for which he was managed with oral hypoglycemic agents (Metformin 500mg BD/Glimepiride 1 mg BD) and in several occasions with Insulin Human Mixtard (Regular Human Insulin 30% + NPH Human Insulin 70%). The patient during this period also had an episode of diabetic ketoacidosis and this medical emergency was managed effectively in at CLTRI. The patient also underwent a surgical procedure for gluteal abscess. He underwent decompression surgery of the posterior tibial nerve due to the foot drop disability which did not effectively respond to steroids. Due to extensive fungal infection, the patient also received topical and systemic antifungal treatment for more than a month. All these features could be due to the long term use of steroids for reactions. Since the patient was managed as an outpatient, was a regular visitor with plethora of complaints on each occasion the patient complaints were perhaps not properly and timely investigated at CLTRI, however, there is no evidence to pin point any deficiencies. This might also have also contributed to the chronicity of urinary tract infection which might have been perpetuated by steroid intake for long period

and uncontrolled or inadequately controlled diabetes. One complication lead to another in this patient of MB leprosy with chronic recurrent lepra reaction and was given steroids to control the reaction which most likely precipitated diabetes in this patient. Diabetes increased the risk of frequent urinary tract infections. Due to uncontrolled diabetes and irregular and incomplete treatment of urinary tract infection the patient possibly developed the complicated UTIs, Xanthogranulomatous and emphysematous pyelonephritis which ultimately this led to his death due to septicemia.

Xanthogranulomatous pyelonephritis (XGP) is a rare entity most often seen in middle-aged women with recurrent UTIs. This represents 1% of all renal infections due to multiple etiologies (Li and Parwani 2011). Emphysematous pyelonephritis (EPN) is a severe form of necrotizing multifocal bacterial nephritis with gas formation within the renal parenchyma. The commonest organisms are *Escherichia coli* and *Klebsiella* followed by *Proteus* (Pontin and Barnes 2009).

Xanthogranulomatous and emphysematous pyelonephritis occurring in the same person is a very rare entity. In our knowledge, this is the second case with this rare combination, first being seen in an old hemodialysis patient (Wen and Chen 2007), however, this is probably the first reported case of a young adult male who was treated for leprosy, lepra reactions and Diabetes.

This case should alert the physicians treating lepra reactions for their early detection of complications due to steroids. Once the complication risk is identified, necessary steps should be initiated for changing to the other anti-inflammatory drugs. In the absence of drugs or tolerance, the patient should be managed

cautiously for reactions and the steroid-induced complications with regular monitoring of parameters involving all systems to prevent any chronic hidden complication which may be fatal if there is a delay in early and timely management of the complication.

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References

1. Eid YM and Salam MM (2010). Diabetic keto-acidosis presenting with emphysematous pyelonephritis. *J Diabetes Complications*. **24**: 214-6.
2. Hakeem LM, Bhattacharyya DN, Lafong C et al (2009). Diversity and complexity of urinary tract infection in diabetes mellitus. *Br J Diabetes Vasc Dis*. **9**: 119-125.
3. Li L and Parwani AV (2011). Xanthogranulomatous pyelonephritis. *Arch Pathol Lab Med*. **135**: 671-674.
4. Mnif MF, Kamoun M, Kacem FH et al (2013). Complicated urinary tract infections associated with diabetes mellitus: Pathogenesis, diagnosis and management. *Indian J Endocr Metab*. **17**: 442-445.
5. Papang R, John AS, Abraham S et al (2009). A study of steroid-induced diabetes mellitus in leprosy. *Indian J Lepr*. **8**: 125-129.
6. Pontin AR and Barnes RD (2009). Current management of emphysematous pyelonephritis. *Nat Rev Urol*. **6**: 272-9.
7. Pugazhenthana T (Thangaraju P), Giri VC, Aravindan U et al (2015). Iliofemoral Deep Vein Thrombosis (DVT) in Steroid Treated Lepra Type 2 Reaction Patient. *Indian J Lepr*. **87**: 165-168.
8. Wen YK and Chen ML (2007). Xanthogranulomatous pyelonephritis complicated by emphysematous pyelonephritis in a haemodialysis patient. *Clin Nephrol*. **68**: 422-427.

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