

# UNILATERAL PYOSALPINX IN AN ADULT FEMALE PRESENTING WITH FEATURES OF ACUTE ABDOMEN: A CASE REPORT

Shankar Poudel,<sup>1</sup> Upama Sangroula U,<sup>2</sup> Ashik Rajak<sup>3</sup>

<sup>1</sup>Department of Radiology and Imaging, Indira Gandhi Memorial Hospital, Male, Republic of Maldives, <sup>2</sup>Department of Emergency Medicine, Indira Gandhi Memorial Hospital, Male, Republic of Maldives, <sup>3</sup>Ministry of Health, Republic of Maldives

## ABSTRACT

Pyosalpinx is defined as collection of pus in the fallopian tube and is a late manifestation of pelvic inflammatory disease. Pelvic inflammatory disease refers to a spectrum of inflammatory changes of the female genital tract. It comprises of endometritis, salpingitis, cervicitis, pyosalpinx, tubo-ovarian abscess and peritonitis. Pyosalpinx may progress to tubo-ovarian abscess which may rupture leading to peritonitis. In addition, pelvic inflammatory disease commonly affects both side of the tube. Thus, early diagnosis and proper intervention plays a great role in the management of pyosalpinx. We report a case of unilateral left sided pyosalpinx which presented with features of acute abdomen.

## KEYWORDS

ADC, CECT, DWI, magnetic resonance imaging, pyosalpinx

*Received on:* March 27, 2021

*Accepted for publication:* June 18, 2021

## CORRESPONDING AUTHOR

Dr. Shankar Poudel,  
Department of Radiology and Imaging, Indira Gandhi Memorial Hospital, Male, Republic of Maldives  
Email: drshankarradio@gmail.com  
Orcid No: <https://orcid.org/0000-0003-4238-4244>  
DOI: <https://doi.org/10.3126/nmcj.v23i3.40419>

## INTRODUCTION

Pelvic inflammatory disease (PID) is defined as a spectrum of diseases characterized by inflammatory changes of the upper and lower genital tract. It occurs as a result of ascending bacterial infection into the upper genital tract which progresses from endometritis, salpingitis, hydrosalpinx to pyosalpinx. It commonly occurs bilaterally and unilateral involvement is rare. Pyosalpinx if untreated may progress to tubo-ovarian abscess and may rupture into the peritoneum. If the content of the tube is only fluid, it is called hydrosalpinx; if the content is blood and pus it is called haematosalpinx and pyosalpinx respectively.

Imaging helps in proper diagnosis of pyosalpinx. Transvaginal sonography is the initial investigation which helps in characterization of tubo-ovarian pathology. It helps in differentiation from endometriosis, which also presents with acute abdomen. Hysterosalpingogram plays an addition role in further evaluation of tubal pathology. CT pelvis shows tubular dilated fluid filled structure with thickening of tubal wall and adjacent inflammatory changes. MRI with Diffusion weighted imaging (DWI) and Apparent diffusion coefficient (ADC) helps in definitive diagnosis of pyosalpinx and is characterized by diffusion restriction of its content.

Proper timely diagnosis of pyosalpinx is important and if left untreated may progress to tubo-ovarian abscess with rupture which may further result in peritonitis.

## CASE REPORT

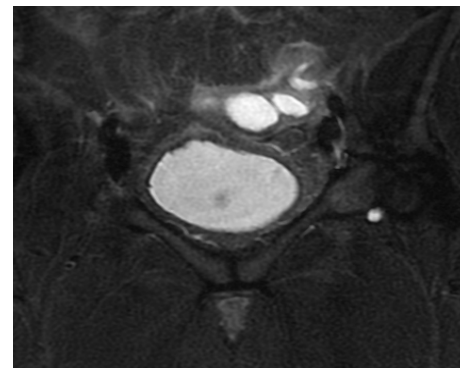
A 29-year-old married female presented to the emergency with complaint of left lower abdominal pain associated with multiple episodes of vomiting. On examination, deep tenderness was present in the left iliac region and there was no history of fever. Past medical history was insignificant along with normal laboratory investigations, except CRP which was raised. Differential diagnosis of ureteric colic, ovarian pathology, diverticulitis, panniculitis, PID was made and patient was sent for radiological investigation.

Sonography was performed which showed complex left sided tubo-ovarian cyst and further imaging was advised. The patient was referred for CECT abdomen and pelvis for evaluation of acute abdomen.

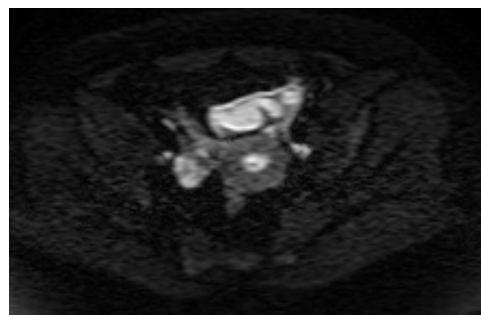
On CECT, fluid tubular structure with enhancing thick wall was seen in the left adnexa (Fig. 1). There were no enhancing nodular areas within the dilated tube. However, the left ovary



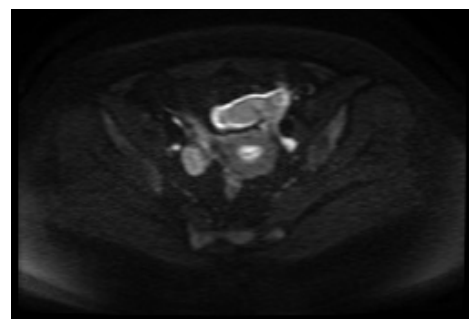
**Fig. 1:** Axial contrast CT at the level of pelvis showing fluid filled dilated tubular structure with wall enhancement at left adnexa with surrounding inflammatory changes



**Fig. 2:** Coronal T2 STIR image showing thick wall T2 hyperintense tubular fluid filled structure in left adnexa



**Fig. 3a:** DWI imaging (b1000) at the level of pelvis showing diffusion restriction of left tubular content suggestive of pyosalpinx



**Fig. 3b:** ADC image at the level of pelvis showing diffusion restriction in left fallopian tube suggestive of pyosalpinx

showed a tiny cyst. Inflammatory changes were further noted in the adjacent mesentery and differential diagnosis of hydrosalpinx and pyosalpinx were made with advice for MRI.

MRI pelvis showed hypointense tubular thick wall structure in left adnexa on T1 weighted imaging that appeared hyperintense on T2 weighted imaging (Fig. 2). DWI and ADC imaging showed restricted diffusion of fluid within tubular structure which suggested pyosalpinx (Fig. 3A and 3B).

## DISCUSSION

PID is one of the most common cause of acute abdomen in an adult female. Diagnosis of PID can be challenging due to clinical features mimicking other abdominal and pelvic pathologies. Pyosalpinx is defined as a collection of pus within the fallopian tube and is a late feature of PID. Early PID can sometimes remain asymptomatic and patient may present with features of late or complicated PID. Though PID commonly involves bilateral genital tract, involvement of unilateral side is a rare manifestation. Unilateral involvement of tube has been reported in a virgin child, which was associated with other genito-renal tract abnormality.<sup>1</sup> Recurrent bilateral pyosalpinx has been reported in genital tubercular infection<sup>2</sup> and pyosalpinx in postmenopausal women associated with fallopian tube malignancy has also been reported.<sup>3</sup> Bilateral pyosalpinx are common in sexually active individuals, however, unilateral pyosalpinx in sexually active female has rarely been reported. Risk factors for PID include multiple sexual partners, young age, low socio-economic status, douching, intrauterine devices and genitourinary malformation.<sup>4</sup>

Computed tomography plays a vital role in the diagnosis of PID. In early PID, there is obscuration of pelvic fascial planes, thickening of uterosacral ligament, salpingitis, oophoritis, etc. Late PID shows features of hydrosalpinx which later progresses to pyosalpinx and tubo-ovarian abscess. CT findings of pyosalpinx are tubular C or sausage shaped structure which folds on itself with thickened wall and peritubal inflammatory changes. On contrast study, there is enhancement of the tubal wall.<sup>5</sup>

Multiplanar MR also helps in determining causes of pyosalpinx and nature of tubal contents. On T1 imaging, content may be hypointense in simple hydrosalpinx or hyperintense in case of protein or blood. The content appears hyperintense on T2 weighted imaging. There

is also thickening of tubal wall in pyosalpinx. DWI imaging plays an important role in the diagnosis of pyosalpinx by demonstrating restricted diffusion of the content. Presence of enhancing solid component in the tubal wall is suggestive of tubal malignancy whereas enhancement of dilated tubal wall with sac like structure suggests tubal pregnancy.<sup>6</sup>

Cogwheel appearance of the tube due to thickened longitudinal fold is a characteristic imaging finding of pyosalpinx or hydrosalpinx. Hysterosalpingogram shows a dilated fallopian tube filled with contrast without free spillage. Laparoscopy helps in diagnosis along with therapeutic intervention of pyosalpinx by aspiration of pus. Broad spectrum antibiotic also helps in conservative management.

If untreated, pyosalpinx leads to tubal rupture with peritonitis or even tubo-ovarian abscess along with uterine perforation. Thus, timely diagnosis and therapeutic intervention plays a vital role in the management of pyosalpinx.

Conflict of Interest: None

Source of research fund: None

## REFERENCES

1. Moralioglu S, Ozen İ, Demiroğullari B, Başaklar A. Pyosalpinx and hydrosalpinx in virginal adolescents: Report of two cases. *West Indian Med J* 2013; 62: 257–9. PMID: 24564050.
2. Gascón J, Acién P. Large bilateral tubercular pyosalpinx in a young woman with genitourinary malformation: a case report. *J Med Case Reports* 2014; 8: 176. doi: 10.1186/1752-1947-8-176. PMID: 24894269.
3. Rao A, Rani R, Rathod S. A rare presentation of a pyosalpinx in a post-menopausal woman. *Int'l J Reprod Contracept Obstet Gynecol* 2018; 7: 3381–5. doi: 10.18203/2320-1770.ijrcog20183000
4. Revzin MV, Mathur M, Dave HB, Macer ML, Spektor M. Pelvic inflammatory disease: Multimodality imaging approach with clinic-pathological correlation. *Radiographics* 2016; 36: 1579-96. doi: 10.1148/rg.2016150202. PMID: 27618331.
5. Sam JW, Jacobs JE, Birnbaum BA. Spectrum of CT findings in acute pyogenic pelvic inflammatory disease. *Radiographics* 2002; 22: 1327-34. doi: 10.1148/rg.226025062. PMID: 12432105.
6. Kim MY, Rha SE, Oh SN, Jung SE, Lee YJ, Kim YS, Byun JY, Lee A, Kim MR. MR imaging findings of hydrosalpinx: A comprehensive review. *Radiographics* 2009; 29: 495-507. doi: 10.1148/rg.292085070. PMID: 19325061.