Salpingitis: Hydrosalpinx

PRESENTED BY:

DR.ASISH KUMAR SAHA

PHARM.D INTERN

DEPT OF PHARMACY PRACTICE

JSS COLLEGE OF PHARMACY, OOTY

General Surgery Unit
Government Head Quarters
Hospital, Udhagamandalam

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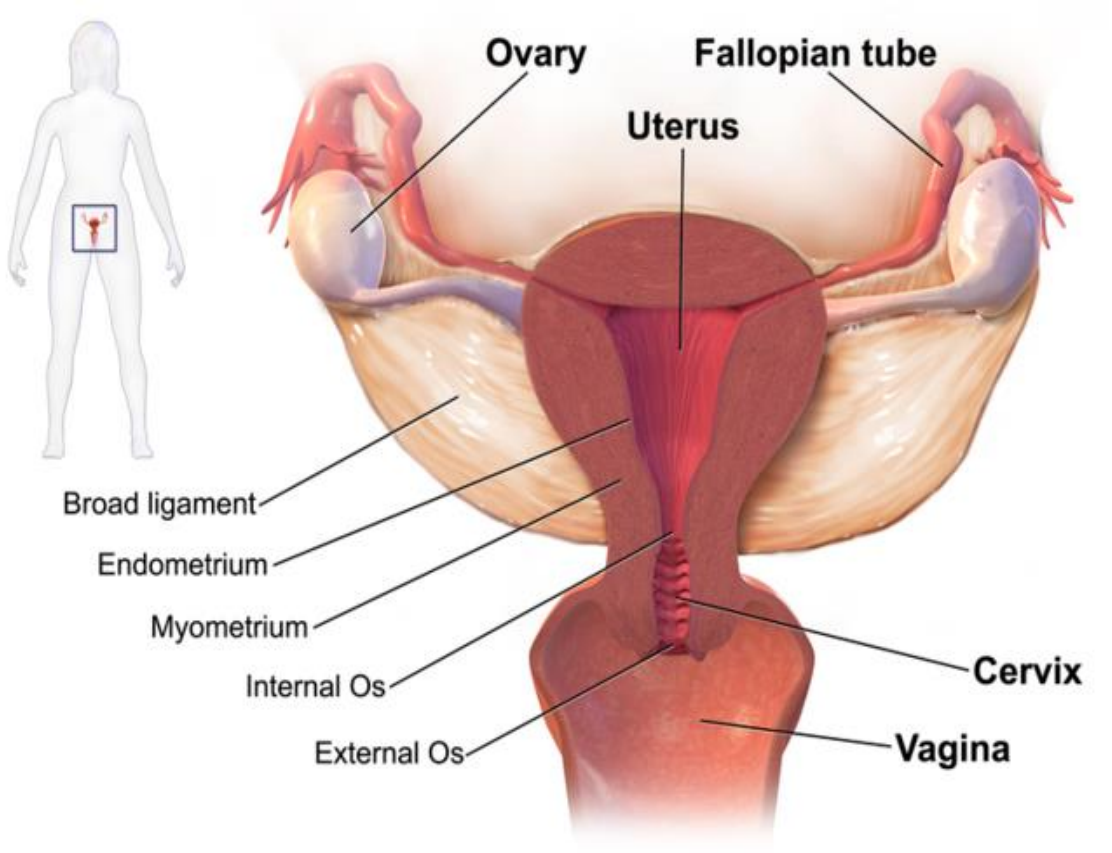
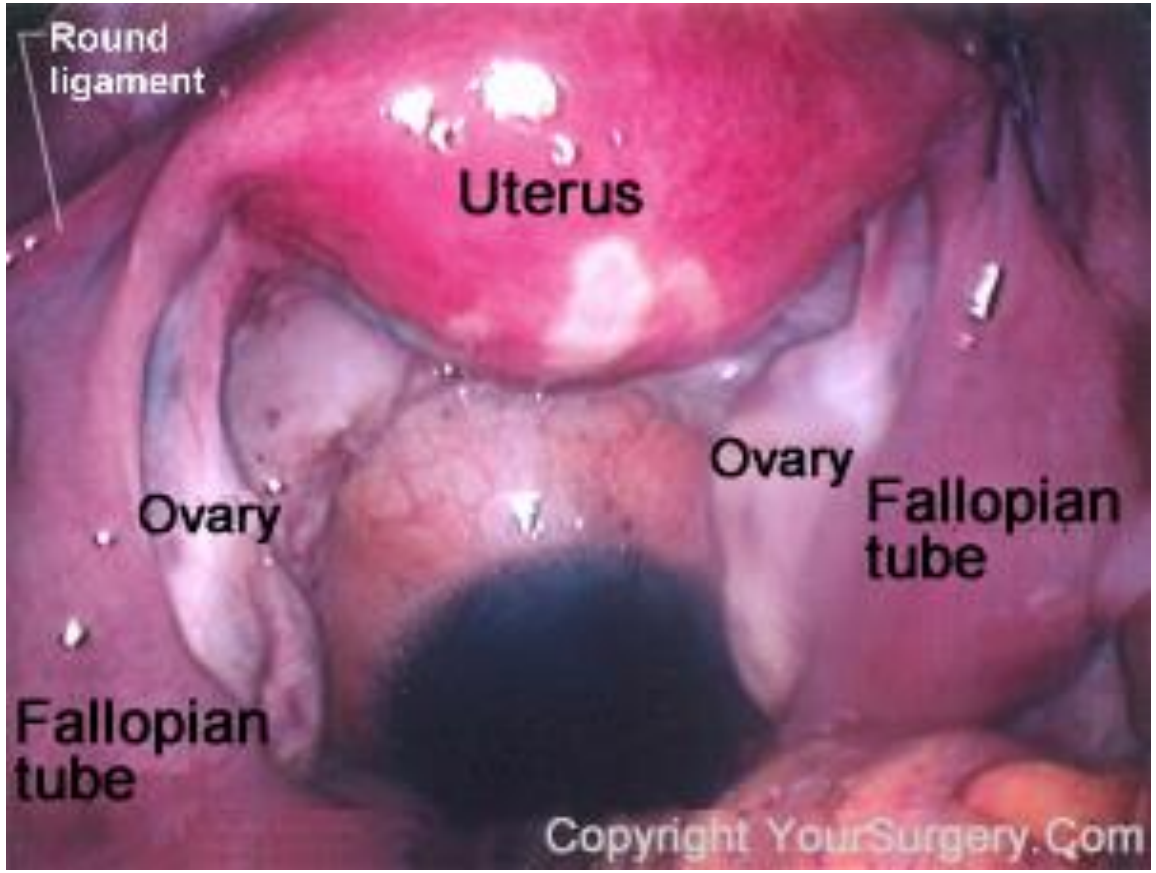
What is Salpingitis?

- Infection of the fallopian tube is called salpingitis.
- The following facts are to be borne in mind while dealing with salpingitis:
  - ✓The infection is usually polymicrobial in nature
  - ✓Both the tubes are effected
  - ✓Ovaries are usually involved in the inflammatory process and as such, the terminology of salpingoophoritis is preferred.
  - ✓Tubal infection almost always affects adversely the future reproductive function.

Anatomy of Female Reproductive System





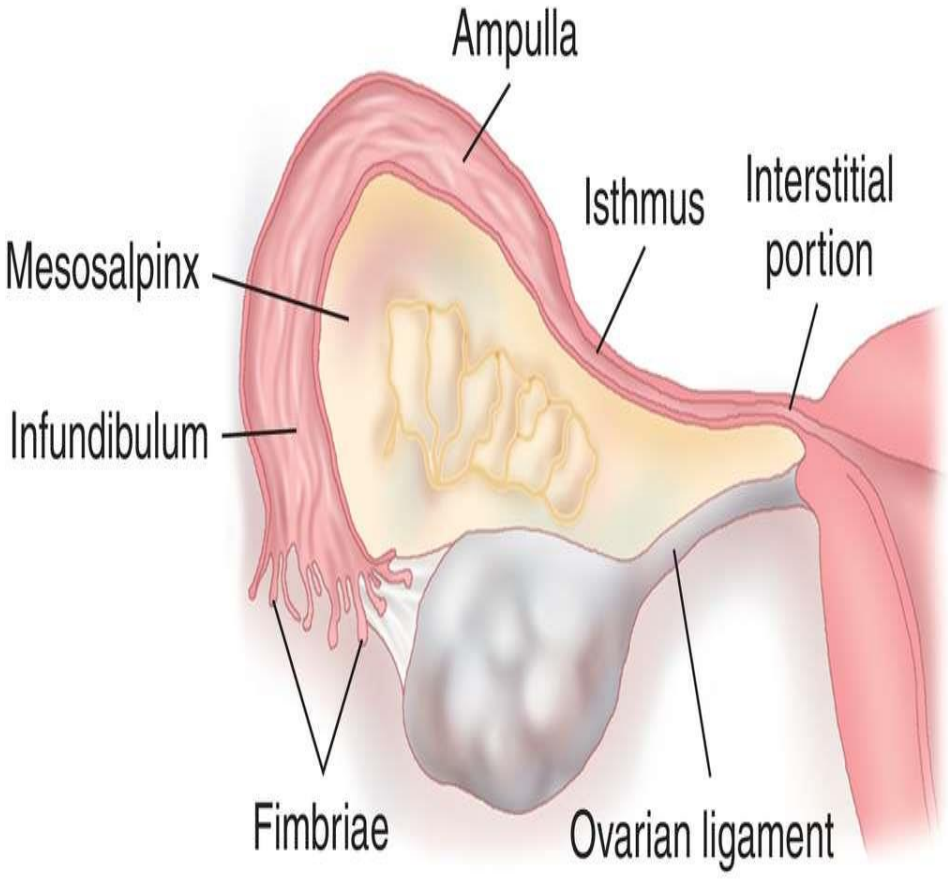
Anatomy of Fallopian Tube

- The uterine tubes are parried structures, measuring about 10cm (4'') and are situated in the medial three-fourth of the upper free margin of the broad ligaments.
- Each tube has got two openings, one communicating with the lateral angle of the uterine cavity, called uterine opening and measures 1 mm in diameter, the other is on the lateral end of the tube, called pelvic opening or abdominal ostium and measures about 2mm in diameter.

Anatomy of Fallopian Tube

There are four parts, from medial to lateral, they are—

1. **Intramural or interstitial lying** in the uterine wall and measures 1.25 cm (1/2") in length and 1 mm in diameter;
2. **Isthmus** almost straight and measures about 2.5 cm (1") in length and 2.5 mm in diameter;
3. **Ampulla**—tortuous part and measures about 5 cm (2") in length which ends in wide;
4. **Infundibulum** measuring about 1.25 cm (1/2") long with a maximum diameter of 6 mm. The abdominal ostium is surrounded by a number of radiating fimbriae, one of these is longer than the rest and is attached to the outer pole of the ovary called ovarian fimbria



Anatomy of Fallopian Tube

❖ **Functions :** The important functions of the tubes are—

(1) transport of gametes,

(2) to facilitate fertilization, and

(3) survival of zygote through its secretion.

❑ **Blood supply:** Arterial supply is from the uterine and ovarian. Venous drainage is through the pampiniform plexus into the ovarian veins.

❑ **Nerve supply:** The nerve supply is derived from the uterine and ovarian nerves. The tube is very much sensitive to handling.

Epidemiology

- Over one million cases of acute salpingitis are reported every year in the US, but the number of incidents is probably larger, due to incomplete and untimely reporting methods and that many cases are reported first when the illness has gone so far that it has developed chronic complications.
- For women age 16–25, salpingitis is the most common serious infection. It affects approximately 11% of females of reproductive age.

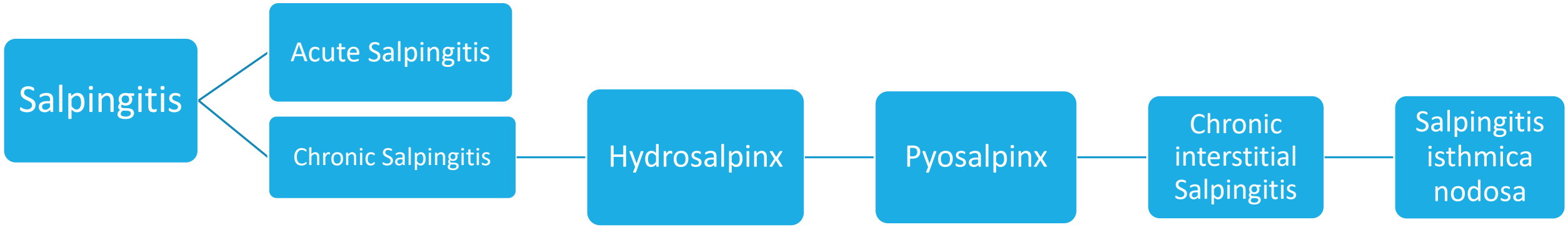
Etiology

I. Ascending infection from the uterus, cervix and vagina. Pyogenic organisms/ Sexually transmitted infections (STIs).

II. Direct spread from the adjacent infection. One or both the tubes are affected in appendicitis, diverticulitis, or following pelvic peritonitis. The organisms are usually E. coli or Streptococcus fecalis. Bacteroides fragilis is too often involved whenever abscess is formed.

III. Tubercular

Types of Salpingitis



Hydrosalpinx

- Collection of mucus secretion into the fallopian tube is called hydrosalpinx.
- Hydrosalpinx is also considered as the end stage of pyosalpinx when the pus becomes liquefied to make the fluid clear.

Pathogenesis

- It is usually due to the end result of repeated attacks of mild endosalpingitis by pyogenic organisms of low virulence but highly irritant. The organisms involved are Staphylococcus, E. coli, Gonococcus, Chlamydia trachomatis, etc.
- During initial infection, the fimbriae are edematous and indrawn with the serous surface, adhering together to produce closure of the abdominal ostium.
- The uterine ostium gets closed by congestion. The secretion is pent up to make the tube distended. The distension is marked on the ampullary region than the more rigid isthmus.

Pathogenesis

- As the mesosalpinx is fixed, the resultant distension makes the tube curled and looks ‘retort’-shaped. The wall is smooth and shiny containing clear fluid inside, which is usually sterile.

- The uterine ostium is not closed anatomically, thus favors repeated infection. At times, there is intermittent discharge of the fluid into the uterine cavity (intermittent hydrosalpinx or hydrops tubal profluens).

Symptoms

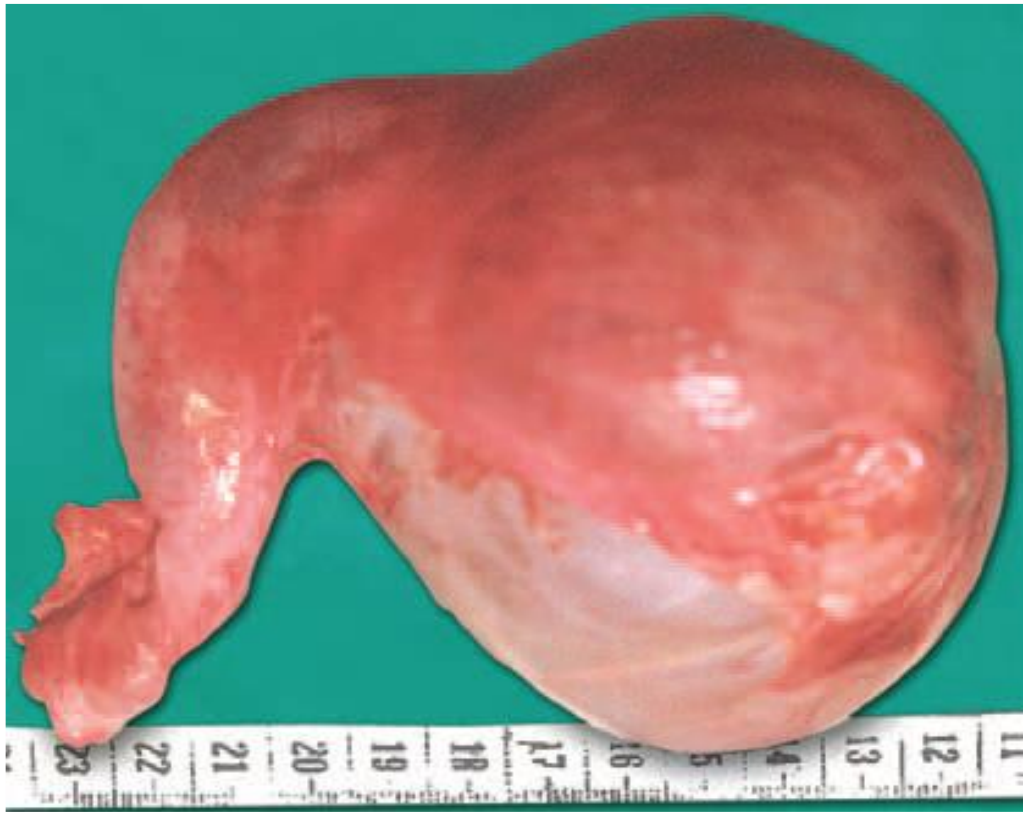
Often, cases of salpingitis are asymptomatic. They may be caught during a regular pelvic exam. When symptoms do appear, they typically begin after period, and can include:

- Pelvic pain, especially during ovulation and menstruation
- Bloating
- Changes in the color or smell of vaginal discharge
- Lower back pain
- Fever
- Nausea or vomiting
- Painful intercourse

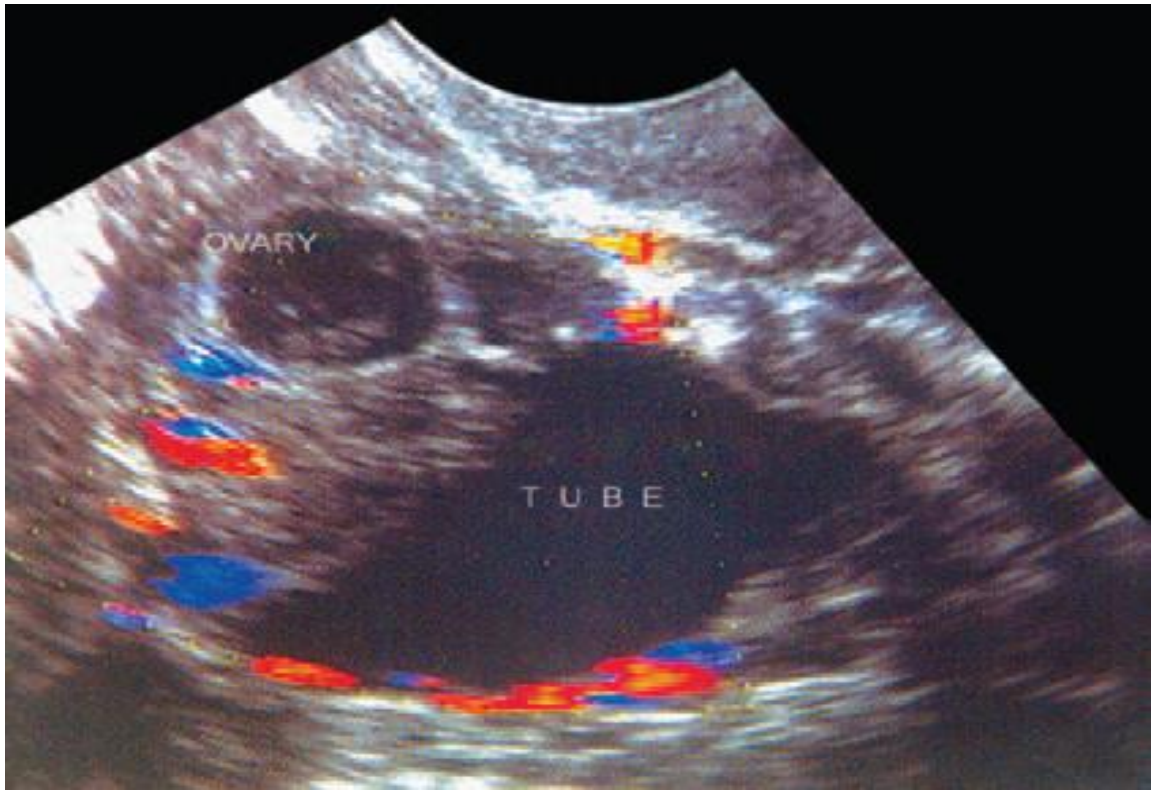
Diagnosis-Clinical Examination

- An HSG—a special kind of x-ray—can show tubal blockages.
- To determine if the blockage is a hydrosalpinx, a **sonohysterosalpingography** may be needed. This procedure involves passing saline fluid and sterile air through the cervix and into the uterus. Then transvaginal ultrasound is used to visualize the reproductive organs.
- Ultrasound and Color Doppler (TVS): Sausage-shaped complex cystic structure with reduced resistance index (RI) in the adnexal region is suggestive of the diagnosis.

Diagnosis-Clinical Examination



Depending on tubal diameter **hydrosalpinx** may be mild <15 mm; **moderate** 15–30 mm; **severe** > 30 mm



Color Doppler scan (TVs) showing ovary and the tube with hydrosalpinx change

Complications

- The following may happen :

i. Formation of tuboovarian cyst

ii. Torsion

iii. Infection from the gut

iv. Rupture.

Treatment

- Surgery (Salpingectomy) is the most common treatment for hydrosalpinx, with IVF treatment after to aid in conception. Most often, the fallopian tube is removed completely. Depending on the root cause of the hydrosalpinx, surgery may also involve removal of other adhesions, scar tissue, or endometrial growths.

- If PID is responsible for the hydrosalpinx, antibiotics can be used to treat lingering infections.

Real Case

Subjective

A 30 year old female patient admitted to female surgical ward with chief complaints of severe abdominal pain for last 4 days. She was married in 2003, has 3 daughters age 14, 13, 10 respectively. All the child were delivered normally.

Past Medical History: H/o Appendectomy 8years back, H/o Tubectomy 10 years back, K/C/o Hypothyroidism for last 7 years, No/H/o SHT/DM/Asthma/TB, H/o abdominal pain on & off for last 2years.

Past Medication History: Tab. Thyroxine sodium-25mcg

Special History: Work in carrot field

Family History: No relevant family history.

Allergies: Food- Nil

Drug- Ciprofloxacin, Metronidazole, Ranitidine

Vitals:

Weight: 56Kgs
BP: 110/70mmHg
PR: 78beats/mnt
RR/ 22/mnt
Temp: 98.498.4°F
CVS: S1S2+
CNS, RS: NAD
P/A: Soft

Objective

Laboratory Investigations Reports		
Parameters	Obtained value	Normal Range
Haemoglobin (Hb)	12.4	12-16g/dL
WBC	11800	4500-11000/µl
Polymorphs	69%	40-65%
Lymphocytes	27%	30-50%
Monocytes	4%	2-4%
Platelet count (Pt)	414	150-400 x 103/mm3
RBC's	4.45	4.2-5.4 x 106/mm3
Hct	36.4	38-45%
MCV	81.8	76-96 m3
MCH	27.9	27-31 pg/cell

Objective

Laboratory Investigations Reports			
MCHC	34.1		32-36%
RBS	103		<200 mg/dL
Blood Urea	31		20-40 mg/dL
Serum Creatinine	0.6		0.4-1.2 mg/dL
AST (SGOT)	06		0-35 U/L
ALT (SGPT)	07		0-35 U/L
ALP	176		<240 U/L
Bilirubin	Total	0.8	0.3 - 1.2 mg/dl
	Direct	0.5	0.0 - 0.3 mg/dl
	Indirect	0.3	

Objective

Laboratory Investigations Reports		
Blood Group:	B+	
Bleeding Time:	1’30’’	<5 min
Clotting time:	3’30’’	5-9 min
ICTC	Non-Reactive	

CT Scan of Abdomen and Pelvis

Impression:

- Mild tethering and angulation at one of the distal ileal loop at RIF- suggestive of adhesions.
- No major wall thickening, proximal dilation or obstruction seen at small bowel.
- Oral contrast reaches the large bowel.
- Bilateral hydrosalpinx at adnexa.

Provisional Diagnosis

Adhesion Colic with Bilateral Hydrosalpinx

Assessment

Date	Day	On Examination	Patient complaints	Drug(s) Prescribed	Dose	Frequency
31/07/2018	1			Rx Semisolid intake Inj. Ciprofloxacin IV Inj. Metronidazole IV Inj. Ranitidine IV Inj. Diclofenac	 200mg 500mg 50mg 75mg	 BD TDS BD BD
01/08/2018	2	BP: 100/60mmHg T: 98.4°F PR: 74 beats/mt RR: 22/mt CVS, RS: NAD P/A: Soft		Rx Inj. Ciprofloxacin IV Inj. Metronidazole IV Inj. Ranitidine IV Inj. Diclofenac Inj. Avil IV Inj. Dexamethasone	 200mg 500mg 50mg 50mg 2cc 2cc	 BD TDS BD BD Stat
02/08/2018	3	BP:100/80mmHg T:98.4°F PR: 84beats/mt RR:24/mt CVS, RS: NAD P/A: Soft		Rx Inj. Ciprofloxacin IV Inj. Metronidazole IV Tab. Diclofenac Cap. Omeprazole	 200mg 500mg 50mg 20mg	 BD TDS BD BD

Date	Day	On Examination	Patient complaints	Drug(s) Prescribed	Dose	Frequency
03/08/2018	4	BP:100/60mmHg T:98.4°F PR: 86beats/mt RR:24/mt CVS NAD RS P/A: Soft		Rx Continue the same.		
04/08/2018	5	BP: 100/70mmHg T: 98.4°F PR: 88 beats/mt RR: 22/mt CVS NAD RS P/A: Soft		Rx Continue the same, skip metro/cipro		
05/08/2018	6	BP:110/80mmHg T:98.4°F PR: 76beats/mt RR:24/mt CVS NAD RS P/A: Soft		Rx Inj. Ceftrioxone IV Inj. Metronidazole IV Tab. Diclofenac Cap. Omeprazole	 1g 500mg 50mg 20mg	 BD BD BD BD

Date	Day	On Examination	Patient complaints	Drug(s) Prescribed	Dose	Frequency
06/08/2018	7		**Operative Notes:** ▲Adhesive colic with B/L Hydrosalpinx Syr: Lab. Adhesiolysis with B/L fallopian tube (Salpingectomy) 10mm port- pneumoperitoneum created Two 5mm port: Right lumbar region & left Iliac fossa Adhesion in R/F between perineal ilium, caecum and abdominal wall adhesions released. B/L Hydrosalpinx, B/L Salpingectomy done. DT Kept	Rx NPO IVF-NS RL DNS Inj. Ceftriaxone IV Inj. Metronidazole IV Inj. Diclofenac IM Inj. Ranitidine IV	 2 pint 1 pint 2 pint 1g 500mg 50mg 50mg	 BD BD BD BD
07/08/2018	8	BP:100/60mmHg T: 98.4°F PR: 78 beats/mt RR: 20/mt CVS NAD RS P/A: Soft	Input: 2600ml Output: 1900ml DT: 10ml	Rx IVF-DNS RL Inj. Ceftriaxone IV Inj. Diclofenac IM Cap. Omeprazole	 2 pint 1 pint 1g 50mg 20mg	 BD BD BD
08/08/2018	9	BP:110/70mmHg T:98.4°F PR: 86beats/mt RR:24/mt CVS NAD RS P/A: Soft	DT: 10ml	Rx Soft diet IVF-DNS Inj. Ceftriaxone IV Inj. Diclofenac IM Cap. Omeprazole	 2 pint 1g 50mg 20mg	 BD BD BD

Date	Day	On Examination	Patient complaints	Drug(s) Prescribed	Dose	Frequency
09/08/2018	10	BP:110/70mmHg T:98.4°F PR: 72beats/mt RR:22/mt CVS NAD RS P/A: Soft	Wound healthy. DT: Minimal discharge	Rx Soft diet IVF-DNS Inj. Ceftriaxone IV Inj. Diclofenac IM Cap. Omeprazole	 2 pint 1g 50mg 20mg	 BD BD BD
10/08/2018	11	BP:100/60mmHg T:98.4°F PR: 84beats/mt RR:24/mt CVS NAD RS P/A: Soft; BS+	DT was removed.	Rx Cap. Amoxycillin Tab. Diclofenac Cap. Omeprazole	 250mg 50mg 20mg	 BD BD BD
Patient got discharged.						
Discharge Summary:						
Advice: High fibre diet. Review Tuesday in surgery OP.				Rx Cap. Amoxycillin Tab. Diclofenac Cap. Omeprazole	 250mg 50mg 20mg	 BD BD BD

Intervention

1. 2nd , 3rd , 4th Day: Ciprofloxacin should have been replaced with Ceftriaxone due to allergic reaction to ciprofloxacin.

2. 2nd Day: Ranitidine should have been replaced with omeprazole due to allergic reaction to ranitidine.

3. Metronidazole should be discontinued as ceftriaxone is an broad spectrum antibiotic.

4. Culture test should have been done.

Treatment Plan

Pre-surgical Treatment:

1. Inj. Ceftriaxone 1g IV BD
2. Cap. Omeprazole 20mg BD
3. Tab. Diclofenac 50mg BD

Surgical Plan:

1. NPO
2. IVF NS 2 pint
   RL 1 pint
   DNS 2 pint
3. Inj. Ceftriaxone 1g IV BD
2. Inj. Ranitidine IV 50mg BD
3. Inj. Diclofenac IM 50mg BD

Surgical Method:
Lap. Adhesiolysis
Salpingectomy

Post Surgical Treatment:

1. Soft diet
2. Inj. Ceftriaxone 1g IV BD
3. Cap. Omeprazole 20mg BD
4. Inj. Diclofenac IM 50mg BD

Discharge Medication:

1. Cap. Amoxycillin 250mg 2tds
2. Tab. Diclofenac 50mg bd
3. Cap. Omeprazole 20mg bd

Monitoring Parameters

Drug Name	Side effects	Monitoring Parameters
Ceftriaxone	a hard lump where the injection was given; nausea, vomiting, upset stomach; headache, dizziness, overactive reflexes; pain or swelling in your tongue; sweating; or vaginal itching or discharge	Urinalysis, BUN, SCr, AST and ALT, skin rash, Neutropenia and leukopenia
Amoxycillin	stomach pain, nausea, vomiting, diarrhea; vaginal itching or discharge; headache; or. swollen, black, or "hairy" tongue.	CBC, LFTs
Omeprazole	Headache, stomach pain, Nausea, Diarrhea, Vomiting, gas	consider Mg at baseline if long-term tx, then periodically
Diclofenac	indigestion, gas, stomach pain, nausea, vomiting; diarrhea, constipation; headache, dizziness, drowsiness; stuffy nose;	Cr at baseline, then if severe renal dz cont. periodically; AST/ALT w/in 4-8wk of tx initiation, then if long-term tx cont. periodically; CBC, chemistry profile if long-term tx; BP

Patient Counselling

- ✓The patient was advised to take adequate bed rest for better and fast healing of the surgical wound.
- ✓The patient was advised to maintain proper personal hygiene.
- ✓The patient was advised not to go for sexual intercourse till the condition improves.
- ✓The patient was advised to complete her antibiotics dose regimen.

Brand Names

Drug name	Brand name (India)	Mgf By:	Price (₹):
Diclofenac	Voltaflam	Novartis India Ltd	1.94/tablet
Omeprazole	Ocid	Zydus Cadila	2.62/capsules
Amoxycillin	Novamox	Cipla Ltd	6.79/Capsules

Take Away Points

- Hydrosalpinx are mostly diagnosed while misconceptions.
- Hydrosalpinx (Tubular Blockage) is the major cause for infertility and is very common now.
- If one has been diagnosed with hydrosalpinx, the first step is to treat the condition before attempting pregnancy. When the hydrosalpinx has been removed, IVF is very good for most patients. Once the patient have recovered from surgery, they can begin an IVF cycle. With the hydrosalpinx gone, the chances of success should be much better.

Take Away Points

References

- Hiralal Konar; DC Dutta's Textbook of Gynaecology; 6th Edition; Ch-12-Infectiona of the individual pelvic organs; Pg-160.
- Dr. Aliabadi, Los Angeles OBGYN, Surgeon. (2018). *Chronic and Acute Salpingitis (Inflammation of the Fallopian Tubes)*. [online] Available at: https://www.draliabadi.com/gynecology/fallopian-tube-conditions/salpingitis/ [Accessed 20 Aug. 2018].
- Nithyananda1, B., Bheeshma2, Cheruku3 and Kethireddy4 (2018). *KEYWORDSFallopian Tube, Salpingitis, Ectopic Pregnancy.*. [online] Jebmh.com. Available at: https://jebmh.com/latest_articles/96901 [Accessed 19 Aug. 2018].
- Acog.org. (2018). *Salpingectomy for Ovarian Cancer Prevention - ACOG*. [online] Available at: https://www.acog.org/Clinical-Guidance-and-Publications/Committee-Opinions/Committee-on-Gynecologic-Practice/Salpingectomy-for-Ovarian-Cancer-Prevention [Accessed 22 Aug. 2018].
- https://www.1mg.com/ accessed on 19/08/2018.
- Nationalhealthexecutive.com. (2018). *The importance of reporting adverse drug reactions*. [online] Available at: http://www.nationalhealthexecutive.com/Health-Service-Focus/the-importance-of-reporting-adverse-drug-reactions [Accessed 20 Aug. 2018].
- Sti.bmj.com. (2018). [online] Available at: https://sti.bmj.com/content/sextrans/76/2/80.full.pdf [Accessed 23 Aug. 2018].

Thank You...!!