Interesting case of PUO

Mit Dharsandiya
Harsh Toshniwal

History

- 21-year-female without any prior co-morbidity from Vadodara presented with
  - Fever since 2 months
    - High grade without chills/rigors, a/w bodyache
  - Decreased appetite
  - Weight loss of 11 kg

- No localizing symptoms pertaining to any system
- No joint pain or skin rash

Past history

- H/o of febrile illness before 4 months from this presentation
- Treated elsewhere with antibiotics (Ceftriaxone 5 days f/b Meropenem 7 days) for ?UTI /??enteric fever

- Travelled to Dubai and Germany before 5 month and 11 months respectively

- College student residing as PG in Ahmedabad
- No pet animals/birds exposure, No addiction

Examination

- Temp- 101.9 F
- Pulse- 108/min regular
- BP- 124/90 mmHg
- Mild pallor +
- Rest of general and systemic exam- Unremarkable

Investigations

	1st EPISODE			2ND EPISODE				
Investigations	**24/11/22**	**03/03/22**	**09/12/22**	**30/01/23**	**02/02/23**	**25/02/23**	**11/03/23**	**16/03/23**
HB	11.7	10.5	9.4	10.2	9.1	9.5	10	9.9
WBC	7240	3900	6710	8880	8310	9060	9790	10500
DC	51/37	56/42	63/30	70/20	65/25	60/33	65/28	68/26
Eosinophils %	1	1	2	1	1	1	2	1
Platelet	446000	279000	464000	434000	434000	463000	573000	584000
RBS	92.52			102	126			
Urea	13.43							
Uric Acid	2.71							
Creatinine	0.89			0.97				
Total Protein	7.02							
Albumin	4.2							
Globulin	2.82							
SGOT	29.04							
SGPT	20.72			17				
ALP	83.9							
Total Bilirubin	0.17	0.5						
Direct Bilirubin		0.2						
Indirect Bilirubin		0.3						
Widal Test		Negative	O-1:160, H-1:160	O-1:160, H-1:160				
PCT			0.43	0.4				
ESR			84	79		98	98	98
CRP			110	198.6		39	44	66
Blood Culture			Negative					

Investigations

	1st EPISODE			2ND EPISODE				
Investigations	**24/11/22**	**03/03/22**	**09/12/22**	**30/01/23**	**02/02/23**	**25/02/23**	**11/03/23**	**16/03/23**
HB	11.7	10.5	9.4	10.2	9.1	9.5	10	9.9
WBC	7240	3900	6710	8880	8310	9060	9790	10500
DC	51/37	56/42	63/30	70/20	65/25	60/33	65/28	68/26
Eosinophils %	1	1	2	1	1	1	2	1
Platelet	446000	279000	464000	434000	434000	463000	573000	584000
RBS	92.52			102	126			
Urea	13.43							
Uric Acid	2.71							
Creatinine	0.89			0.97				
Total Protein	7.02							
Albumin	4.2							
Globulin	2.82							
SGOT	29.04							
SGPT	20.72			17				
ALP	83.9							
Total Bilirubin	0.17	0.5						
Direct Bilirubin		0.2						
Indirect Bilirubin		0.3						
Widal Test		Negative	O-1:160, H-1:160	O-1:160, H-1:160				
PCT			0.43	0.4				
ESR			84	79		98	98	98
CRP			110	198.6		39	44	66
Blood Culture			Negative					

Investigations

- HRCT Thorax- NAD
- USG Abdomen- Left ovarian dermoid cyst, rest normal

- LDH- 181
- Ferritin- 126
- RF- 15 (<14), Anti-CCP- Negative
- Blood cultures- sterile
- HIV, HBsAg- Negative

Differentials

- Infectious:
  - Tuberculosis
  - Brucellosis
  - Infective endocarditis
- Non-infectious:
  - Lympho-proliferative disease
  - Thyroiditis

- All antibiotics were stopped
- ANA by IF- Negative
- ANCA by IF and ELISA- Negative
- TSH- 1.26
- Brucella **igM- 1.68 (>0.9)**, IgG- 0.69 (>0.9)
- Brucella agglutination- Negative
- CECT Thorax/Abdomen- Left ovarian dermoid cyst (7.8x10x8.4 cm)
- USG neck- Normal
- 2D Echo- Normal

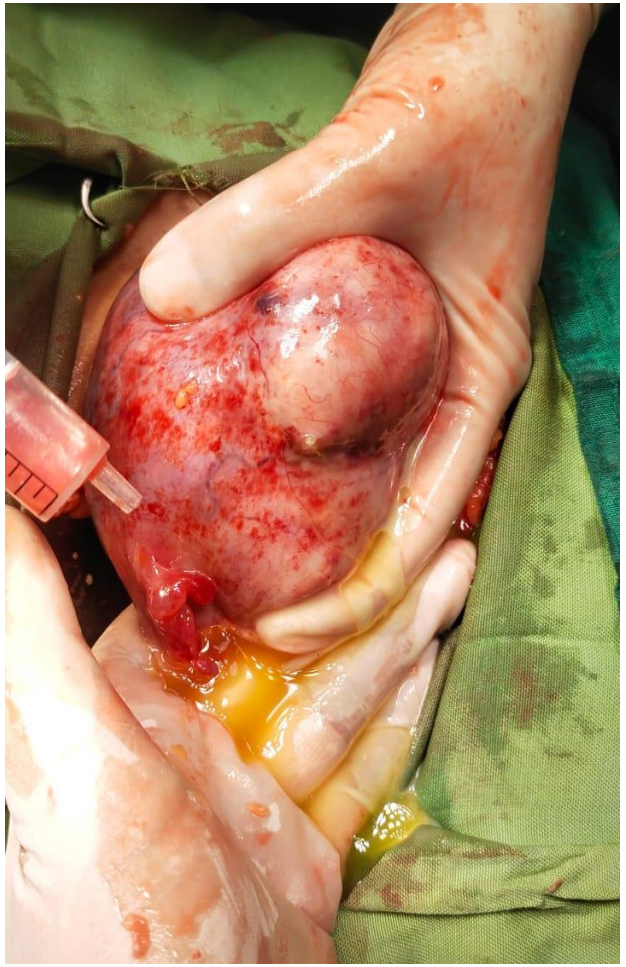
- After 5 days of OFF antibiotics, Blood cultures 2 bottles were sent
- Inj Amikacin 1gm IV OD and Cap Doxycycline 100mg BD

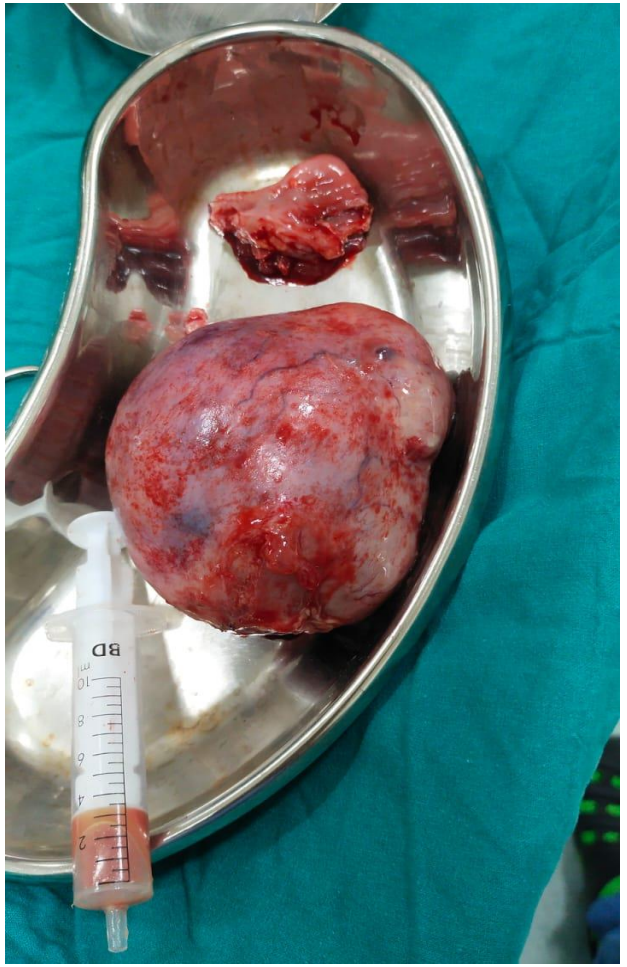
- Next day,
  - Severe lower abdominal pain and Fever with rigors
  - Increased tachycardia- 130/min, hypotension (BP- 90/70 mmHg)

- USG Abdomen – echogenic free fluid in pelvic cavity ?rupture of left ovarian dermoid cyst
- MRI pelvis- confirmed same

Dermoid cyst excision

- Inj. Meropenem and Inj. Clindamycin were started
- Pus and tissue were sent for investigations
- Direct microscopy and GeneXpert- Negative
- She continued high grade fever however hypotension resolved
- On 3rd day pus culture grew GNB-LNF





- Bacterial culture – Salmonella Typhi
- Antibiotics changed to Ceftriaxone and Azithromycin
- Fever- intensity decreased, but persistent

- HPE-
  - Necrotising granulomatous inflammation with occasional AFB

LPA MTBDR plus

Registration Date & Time	: 07-Apr-2023 18:41	Sample Type	: Tissue	Ph #	:
Sample Date & Time	: 07-Apr-2023 19:09	Sample Coll. By	:	Ref Id	: NHID 58547
Report Date & Time	: 11-Apr-2023 19:10	Acc. Remarks	:	Ref Id 2	: 304

Geno Type **MTBDR** plus

Sample Type : Tissue + Pus

Purpose : The GenoType MTBDR is a qualitative test for the identification of the Mycobacterium tuberculosis complex and its resistance to Rifampicin and Isoniazid (low level and High level resistance) resistance. It detects MTB along with resistance in smear positive and smear negative specimens. This method can also be used on pure growth of MTB, to detect early MDR.

Result :

1. MTB Complex : TUB band present
   (MTB complex includes, M.tuberculosis,M.bovis,M.bovis BCG, M.africanum,M.microti, M.canettii and M.pinnipedii)
2. RIFAMPICIN Resistance : No Mutant bands detected
3. INH Resistance (High level) : No Mutant bands detected
4. INH Resistance (Low level) : No Mutant bands detected

TEST CONCLUSION:

Sr No.	Parameter	Result
1.	MTB Complex :	**TUB band present**
2.	Rifampicin :	**Sensitive**
3.	Isoniazid (High level) :	**Sensitive**
4.	Isoniazid (Low Level) :	**Sensitive**
5.	Final Result :	**M.tuberculosis complex detected which is sensitive to Rifampicin and Isoniazid.**

Conclusion: M.tuberculosis complex detected in the received specimen which is sensitive to Rifampicin and Isoniazid.

- HERZ started along with Ceftriaxone and Azithromycin
- Gradually fever subsided and discharged
- She had been asymptomatic at 9 months of follow up

Discussion

- Ovarian dermoid cyst (mature cystic teratoma) is a common ovarian neoplasm which is mostly asymptomatic
- Superinfection of ovarian dermoid cyst is very rare complication occurring in less than 1% cases[1]
- Reported cases of dermoid cyst infection with
  - Salmonella spp.,
  - Brucellosis,
  - Schistosomiasis,
  - Actinomycosis, and
  - Tuberculosis

1. Disaia PJ, Creasman WT. Germ cell, stromal, and other ovarian tumors. In: Disaia PJ, Ceasman WT, editors. Clinical gynecological. 6th ed. ST Louis: Mosby; 2002. pp. 360–361.

Salmonella – Dermoid cyst infection

- Extra-intestinal dissemination of Salmonella infection is uncommonly seen.
- May cause abscess formation in almost any part of the body, such as liver, spleen, endocardium, meninges, bone and joints
- In our case, it is likely that patient had enteric fever in her first illness and undocumented bacteraemia might have lead to seeding of salmonella typhi into the dermoid cyst.
- Same mechanism was proposed by Burgmans JPJ et al in their case of salmonella infection of endometriotic ovarian cyst[2]

2. Burgmans JPJ, van Erp EJM, Brimicombe RW, Kazzaz BA. Salmonella enteritidis in an endometriotic ovarian cyst. Eur. J. Obstet. Gynecol. Reprod. Biol. 1997; 72: 207–11

Tuberculous- Dermoid cyst infection

- Tuberculosis (TB) burden in India is high
- Genital tuberculosis is found in 12% of patients with PTB and 15-20% of patients with EPTB[3]
- In cases of genital TB, fallopian tubes, endometrium and ovaries are involved in decreasing order of frequency
- In our knowledge,
  - Isolated ovarian TB is very rare and reported in only 3 cases
  - isolated tuberculosis of ovarian dermoid cyst has been reported in 2 cases only

3. Gatongi DK, Gitau G, Kay V, Ngwenya S, Lafong C, Hasan A. Female genital tuberculosis. Obstet Gynaecol. 2005;7:75–9.
4. Sharma JB. Current diagnosis and management of female genital tuberculosis. J Obstet Gynaecol India. 2015;65(6):362–71
5. Gudu, W. Isolated ovarian tuberculosis in an Immuno- competent woman in the post-partum period: case report. J Ovarian Res 11, 97 (2018). https://doi.org/10.1186/s13048-018-0472-2

Tuberculous- Dermoid cyst infection

- To our knowledge, this is the first case of dual infections of ovarian dermoid cyst
- In our case, GeneXpert MTB/RIF was carried out separately from ovarian tissue and pus. It was negative but typical caseating granulomatous inflammation on HPE with ZN stain showing AFB and presence of TUB band on LPA confirmed the diagnosis of TB.

Thank You