INTRODUCTION

Acute pain is a common entity with which women of all groups can present in emergency\(^1\). It is rapid in onset, associated with unstable vitals and obvious abnormalities in physical examination and laboratory assessment. A timely and thorough examination, guided by each organ system evaluation of pathology will ensure effective diagnosis and management.\(^2,3\) Causes of acute pain in the reproductive age group include ectopic pregnancy, inevitable abortion, endometritis, pelvic inflammatory disease, tubo ovarian abscess, haemorrhagic corpus luteal cyst.\(^4\) Symptoms may overlap with other gastrointestinal and urinary tract causes like appendicitis, cholecystitis, ureteric colic, etc.\(^5\) In the evaluation of acute pelvic pain, early diagnosis is critical to reducing maternal morbidity and mortality. History of amenorrhoea, nausea, vomiting, abdominal distention, constipation, fever with chills and symptoms of haemoperitoneum like orthostasis, right upper quadrant pain, shoulder pain should be meticulously asked for.\(^1\)

Spontaneous massive haemoperitoneum due to rupture of haemorrhagic corpus luteal cyst in a Mitral Valve Replaced patient on oral anticoagulant is a rare entity and only a few cases have been reported. Due to the effect of anticoagulant, haemorrhage was added effect requiring vitamin K, blood
The patient, 22 years old, resident of Amravati was admitted via casualty with complaints of pain in the abdomen (mild-moderate) since 1 month (increased to severe, since noon), nausea & vomiting (on & off) since 1 month. Last menstrual period- 19/4/20. Last to last menstrual period- 23/3/20, Regular, 25-30 days cycles, Average flow. Obstetric History: Married for 3 yrs. A3 – 3 Spontaneous abortions at 2-2 n half month gestation, (dilatation and evacuation done). On Admission: General condition was moderate, thin built, afebrile, pallor present, pulse- 120/min, no Icterus, exophthalmos present, BP = 110/70 mm Hg. On systemic examination: respiratory system was normal, cardiovascular system - Tachycardia present, Mechanical valve click present, Per abdomen: Soft, mild tenderness present on (left iliac fossa), Per speculum: Cervix, Vagina –Healthy, min bleeding present through cervical os, on per vaginal examination: Uterus- normal-sized, antevored , left Fornix-fullness present, tender ness present, right Fornix- free, non-tender.

**Patients History:** Patients was operated outside for right-sided twisted ovarian cyst on 31/12/19 right Salpingo-oophorectomy was done. Again, was operated on 15 April’20 - Left Salpingectomy for pain in abdomen with USG S/O Se- rous Cyst Adenoma. K/C/O Heart disease (RHD with MS) – Mitral Valve replacement done in 2016, since then, pt was on T. Warfarin 5mg OD. Patients ultra-sonography on 30/4/20 was suggestive of well defined solid cystic lesion in left ad- nexe of 7.9 x 7.6 x 8 cm, with thin septations and no internal vascularity or calcification. Right ovary not separately visualised. Suggestive of benign neoplastic etiology.

**Investigations:** International normalized ratio was 2.07, Haemoglobin was 11.1gm%, platelet was 1,95,000, partial thromboplastin time was 46 Sec. In Liver function test total bilirubin was 1.3, SGOTwas 10, SGPT was 62. Kidney function test - blood urea- 30, serum creatinine- 0.6, serum sodium – 135, serum potassium- 4.1, sickling negative, Urine pregnancy test was negative. Due to persistent tachycardia (pulse - 120- 130/min) her physician opinion was done, and she was started on metXL 25 once daily and Laci lactoneo- nce daily. ECG was s/o sinus tachycardia. 2 D echo done was normal. Initially, she was conservatively managed in view of the benign cyst but the patient’s condition deteriorated with persistent tachycardia and hypotension developed so her tapp-}

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Intraoperative evidence of haemoperitoneum of 1500 cc with well-organized clots and ruptured cyst of left ovary. Uterus identified- normal. Right ovary and tube not visualized. Left- sided cyst wall adherent to the posterior surface of the uterus and surrounding intestine. The cyst wall separated by blunt and sharp dissection. As the patient was on oral warfarin, preop inj. Vitamin K, 2 fresh frozen plasma, and 1 whole blood given. Intra-op 2 whole blood, 2 fresh frozen plasma, and 1 platelet transfusion given. Post-op 2 whole blood giv- en. Drain kept in the pouch of Douglas.

**Post-operative events:** Post-op day 1 – ECG s/o global is- chemia. Troponin T-neg. (Creatinine phosphokinase MB) CPKMB- 52.8 IU/ML. The patient was started on t. atorvas and acitron. Drain output 600 ml in 24 hrs.

Post-op day 2- the patient was started on injectable hepa- rin four time a day dose as suggested by a cardiologist with daily International normalised ratio. Daily International nor- malised ratio was done in the range of 2 – 2.3. Post-op day 8- drain output was few cc in 24 hrs so drain was removed. Pt’s International normalised ratio was 2 so she was started on heparin four times a day with warfarin 5 mg once a day. Post-op day 11- pt had tachycardia and palpitation with intermittent gastroenteritis, managed conservatively. Post- op day 17- International normalised ratio was 2. She was shifted to oral warfarin. Due to persistent tachycardia and palpitation on Post-op day 18- thyroid profile sent s/o overt hyperthyroidism. Serum T3- 429.9 ng/ dl. Serum T4- 24.8 ug/dl. TSH- <0.01iu/ml. She was started on t. metxl 25 mg once a day with t. neomercazole 10 mg thrice a day and t. atorvas and acitron were continued. Gradually tachycardia settled, the general condition improved. Histopath report was s/o haemorrhagic corpus luteal cyst.

**DISCUSSION**

Functional ovarian cysts (follicular and corpus luteal cysts) are most are the common ovarian cysts and are more likely to rupture than benign or malignant neoplasms. During ovula- tion, a small amount of blood leaks into the peritoneal cavity and a high concentration of fluid prostaglandins causes mid- cycle pain (mittelschmerz). Pain is usually mild to moderate and self-limited, with an intact coagulation system, haemoperitoneum is unlikely. The corpus luteum is formed during the ovarian cycle’s luteal phase, and supports the growth of the pregnancy. The central cavity of maturing corpus luteum is filled with blood by the spontaneous but limited bleed. Blood is consumed and the tiny cystic space sequence is created.7 The corpus luteum enlarges when hemorrhage becomes se- vere, and often forms a large cystic structure. A ruptured cor- pus luteum doesn’t cause excessive bleeding most of the time.
However catastrophic blood loss can be, requiring surgical intervention and transfusion of blood. Rupture and resulting bleeding are frequently caused by exercise, coitus, trauma, or a pelvic exam. Haemorrhagic corpus luteal cyst is the most common cyst to rupture and cause haemoperitoneum. Other uncommon causes are uterine rupture, endometriosis, and rupture hydrosalphinx. The patient may present with a wide range of clinical signs with the majority having no signs of severe peritoneal irritation. Evaluation of serum beta hCG helps to differentiate between ruptured ectopic pregnancy and cyst as symptoms of ruptured corpus luteal cysts are the same as ruptured ectopic. Initial blood investigations along with trans vaginal ultrasonography are helpful to diagnose the cause.

Doppler ultrasonography helps to identify the vascularity and type and nature of fluid and also the cyst wall. A contrast CT scan has more role in diagnosing a corpus luteal cyst as the wall appears thickened and shows CT enhancement post dye due to increased vascularity. MRI may not be of help in cases of corpus luteal cysts as compared to CT scan. Treatment targets at preserving ovarian function and eliminating the cause of bleeding. Surgical exploration is indicated if there is significant haemoperitoneum or chemical peritonitis (endometrioma, dermoid) which can be life-threatening.

In patients with artificial heart valves, long-term anticoagulation is required to prevent thromboembolic complications. In such cases, an international standardized ratio (INR) target for anticoagulation must be preserved to prevent thromboembolism, which must be carefully controlled to avoid haemorrhagic complications due to the narrow therapeutic index of vitamin K antagonists. There are much debate and confusion about the type of treatment needed to reverse anticoagulation for emergency surgery and the optimal time to safely restart anticoagulation therapy.

Spontaneous bleeding is one of the warfarin’s most common adverse effects, and factors such as age, dosage, length of treatment, drug exposure, and occult diseases further determine the risk of bleeding. Strict monitoring of the coagulation profile is important in patients who take long-term warfarin. Bleeding and haemorrhage often linked to a ruptured corpus luteum cyst may occur in women in the reproductive age group. Haemoperitoneum is an unusual and often frightening situation to find in these anticoagulant patients. Such patients pose a challenge as abrupt anticoagulation reversal is needed to manage any ongoing haemorrhage and further blood loss from surgery.

There are typically three choices for an immediate anticoagulant reversal in patients receiving the vitamin K antagonist: vitamin K, prothrombinase complex concentrate (PCC), and Fresh frozen plasma (FFP). FFP can be used in patients needing volume resaturation and warfarin reversal if available and pre-thawed immediately. In patients with mechanical mitral valves, FFP alone or in combination with low dose vitamin K (1–2 mg intravenous) is preferable.

According to Hallatt et al., the hemorrhage of a ruptured corpus luteum cyst is likely to be smaller than that of ectopic pregnancy and is likely to be non-recurring until it ends. Corpus luteal cysts are generally reported on pelvic ultrasonographic studies as incidental structures. Corpus luteum cyst rupture with intra-abdominal hemorrhage can appear ultrasonographically similar to a ruptured ectopic pregnancy, as a negative serum pregnancy test can be a discerning feature in our case. For one analysis, instead of the cyst itself, the hemoperitoneum was found to be the dominant imagery feature. Hemoperitoneum from a ruptured hemorrhagic ovarian cyst displays imagery-like characteristics from other sources, such as ruptured ectopic pregnancy. The diagnosis is based mainly on elevated clinical skepticism, laboratory evidence, and results from ultrasounds. Historically the ectopic pregnancy is the main differential diagnosis. Coincidental involvement of corpus luteum cyst rupture has also been recorded with ectopic pregnancy. Therefore, even when intrauterine or extrauterine pregnancy is confirmed, the probability and incidence of corpus luteum cyst rupture should be kept in mind. Corpus luteum hemorrhage treatment is cautious or chirurgical. This may depend on the patient’s haemodynamic state and the volume of hemoperitoneum in during clinical evaluation and ultrasonography.

Hormone contraception may be used to avoid ovarian cysts, resulting in a possible reduction in the associated morbidity and mortality of cystic hemorrhage during anticoagulation. Implementing safe and successful ovulation suppression in adults with CHD remains challenging given their underlying hypercoagulable state and difficulties in predicting risk for the development and rupture of hemorrhagic cysts. Despite their limited safety evidence, the European Cardiological Society is currently advising against the use of combined oral contraceptives. In particular, caution should be extended to preparations containing estrogen in patients with unrepaired defects; those with surgically corrected defects with associated mechanical prostheses; and those with cyanosis, ventricular dysfunction, atrial fibrillation or Eisenmenger physiology complicated defects.

CONCLUSION

Any women of reproductive age group presenting in an emergency with acute abdomen should be ruled out for...
gynaecological and non gynaecological causes meticulously for proper diagnosis and timely management. Patients who are on oral anticoagulants have more chances of bleeding tendencies should be properly given antagonists to prevent excessive blood loss in case of managing the patients surgically. Routine INR follow up should be done to maintain its level. Patient with persistant tachycardia, despite all the appropriate management, can be misleading and they should be searched for other underlying causes like sepsis or overt hyperthyroidism. Prompt diagnosis and management are required to decrease the significant patient morbidity and mortality.

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