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The Dangerous Turn: Review of an Adnexal Torsion

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Ovarian torsion occurs when ovarian mass twists on its vascular pedicle. torsion of ovary is rare but an emergency condition occurring in about 2 - 15% of patients and diagnosing it can be a challenge in an emergency.

Ovarian torsion can be complex or partial rotation of adnexal structure holding the ovary causing schema in ovary. To better understand pathology, we need to have look at adnexal structure at first. Adult size ovary measures about 3 x 2 x 1 cm and weighs about 3 - 8 gms. Normally in nulliparous it lies in ovarian fossa on lateral pelvic wall. At both ends ovary is attached by ligaments at the tubal pole it is attached by infundibulopelvic ligaments which contains the ovarian vessels and at uterine end it is attached by utero-ovarian ligaments.

Torsion most commonly involve both fallopian tube and ovary and isolated torsion is a rare entity occurring in around 1 in 1.5 million women [1]. Torsion is most common in reproductive age group women and during pregnancy and is less common in premenarche and postmenopausal women. Twisting of ovarian pedicle initially obstructs venous flow causing engorgement and ovarian oedema-this engorgement progresses until flow is compromised causing ischemia or infection.

Ovarian torsion is likely to occur when there is some problem with ovary as in ovarian cyst causing enlargement, pregnancy, hormonal medication use for ovulation induction and sometimes normal ovaries can twist in childrens, it can be either intermittent torsion-detorsion causing intermittent pain or complete torsion causing unilateral sudden lower abdominal pain. It is been found that more than 80% of patients with ovarian torsion has ovarian mass more than 5 cm in size and enlarged ovaries. Due to ovarian induction or multi-follicular growth

Are more amenable to torsion [3]. Also, it is been found that benign tumours are more likely to twist than the malignant one.

Torsion due to ovarian cyst is more commonly found in reproductive age group women while more than 50% of premenarchal girls have normal ovaries with torsion at presentation [2].

Of all cases of ovarian torsion 10 - 20% of ovarian torsion cases occurs in pregnancy and most of the cases found at around 10 - 17 weeks of gestation [4]. Depending on severity, torsion may present as sudden onset of pelvic or abdominal pain which may be localised to lower abdomen, nausea, vomiting. On clinical examination generally there may be low grade fever and tachycardia and on abdominal examination it may reveal generalised abdominal tenderness and localised guarding.

On vaginal examination there may be palpable ovarian cyst in either of the fornix, adnexal mass or tenderness.it is been found that presence of acute pelvic pain in premenarche and postmenopausal women is more likely caused by torsion whereas in reproductive years acute pain is more likely caused by functional cysts.in a patients with preexisting history of PCOD, dermoid cyst, or simple of hemorrhagic cysts sudden onset of acute on chronic pain suggest more likely an ovarian torsion.

Malignant tumours are less likely undergo torsion as compared to benign tumours due to its association with pelvic inflammation and adhesions.

Acute pelvic pain in reproductive age group women needs to be differentiated from other causes of pelvic pains such as pelvic inflammatory disease in which pain is non migratory and on examination there is bilateral forniceal tenderness and usually there is no nausea or vomiting.

It also needs to be differentiated from appendicitis pain which is usually is migratory pain in initial stages occurring in women less than 40 years of age associated with nausea and vomiting, leucocytosis and localised tenderness in right iliac fossa.

Similarly, renal colic pain may mimic torsion pain but colic pain is severe intermittent pain and sharp in nature associated with nausea and vomiting.

Pelvic pains due to functional ovarian cyst or OHSS can also present in a similar way but appropriate history taking and clinical examination can differentiate these conditions apart from torsion pain. History of ovulation induction is there in OHSS and nausea vomiting and bloating are prominent features along with pelvic pain [5].

So, any women presented to emergency ward with pelvic pain definitive diagnosis of torsion can be reached by appropriate history taking, clinical examination, along with appropriate investigations such as blood count, ultrasonography will help to reach to a definitive conclusion.

Of all the modalities used to diagnose adnexal torsion ultrasound is still the investigation of choice. But it is to be noted that ultrasound appearance of torsion is highly variable representing the dynamic nature of pathological process of ovarian torsion. It is usually seen on USG as unilateral ovarian enlargement and oedema, peripherally arranged follicles, affected ovary may appear as solid mass with hypo or hyper echoic areas representing haemorrhage and necrosis.

On colour doppler there can be decreased or absent doppler flow in torsed vessels which gives rise to “whirlpool sign” which is highly sensitive for ovarian torsion [6].

If there is simple cyst in ovary the cyst tend to become hemorrhagic due to venous congestion causing fluid inside the cyst more exogenic. Due to oedema ovarian oedema ovarian borders are less well defined and sometimes tubes are also involved and may filled with hemorrhagic fluid. Abnormal colour doppler signal can be found upto all case of ovarian torsion [7] however complete absence of blood flow is a late event so presence of flow within the ovary does not exclude ovarian torsion and this point needs to be remembered.

Ovarian torsion in pregnancy: About 10 - 22% of ovarian torsion cases occur during pregnancy. The risk of ovarian torsion decreases with increasing gestational age and it is unusual after 20 weeks of gestation. Oophorectomy is usually resorted for torsion during pregnancy to avoid small but potential risk of small but repeat torsion during pregnancy [7].

OHSS and ovarian torsion: Use of assisted reproductive technologies is associated with many fold increase in risk of ovarian torsion due to OHSS. In OHSS there are multiple enlarged follicles with ascites. If torsion occurs in OHSS it will be seen as enlarged ovaries with

Multiple follicles and areas of haemorrhages and necrosis. MRI is useful in diagnosis of ovarian torsion when USG findings are equivocal on USG. MRI can demonstrate the component of mass in more details than USG, also MRI is more useful and safe in 2nd and 3rd trimester of pregnancy for diagnosing abdominal pain where ovaries and appendix are more difficult to visualise by USG.

Sometimes CT scan can be used in non pregnant patients with abdominal pain to rule out other causes such as appendicitis or diverticulitis, finally for confirmation and management direct visualisation by laparoscopy or laparotomy is needed. On laparoscopy if ovary is

healthy looking detorsion is being done and ovarian conservation is recommended rather than salpingo-oophorectomy. But the surgical management is determined by many factors including patients age, menopausal status, preexisting ovarian pathology and desire to preserve the fertility.

The likelihood of preserving viable ovarian tissue with conservative surgery such as detorsion decreases with time. The earlier the approach to torsion the higher is the chance to preserve the ovarian function. An animal study showed that necrosis MGHT develop after occlusion of ovarian vessel for 36 hrs or longer.

In a patient with nonfunctional ovarian cyst, laparoscopic cystectomy with detorsion or interval cystectomy can be done 2 - 3 weeks after detorsion to avoid operating on oedematous and fragile ovarian tissue and to allow time for oedema and congestion to resolve.

In young patients where utero-ovarian ligament is long and in case of recurrence of ovarian torsion oophoropexy [8] is an effective treatment strategy where ovary can be fixed to back of uterus or stitched in a fashion of "hot dog in bun" to make it fixed and prevent recurrence. Also shortening of utero-ovarian ligament is done to avoid recurrence.

Management of ovarian torsion is same is pregnant patients and laparoscopic surgery is found to be safe in pregnant women [9].

Many observational studies found that detorsion is associated with preserved ovarian function [10] in cases where ovary is black and necroses with prolonged pain to detection interval it is safe to go for oophorectomy or salpingoophorectomy, for recurrence prevention OC pills and oophoropexy can be done.

So, to conclude detailed history taking along with physical examination backed by appropriate investigations will help to prompt the diagnosis and aid in the management. Conservative management is to be followed as far as possible, prompt intervention is needed to preserve the ovarian function.

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