Research Article

Current Opinion in Gynecology and Obstetrics Big Mass: is it a Big issue?

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Abstract

Women present with a big mass will feel worried and uncertain about herself as there is a possibility of cancer. Most of the big masses are originated from the uterus or ovarian origin and it is vital for the patient to find out the most possible diagnosis. With the improvement of modern technology, the ultrasound plays an important role to get the diagnosis, however, it has some limitations like difficulty to visualize the whole mass. Other investigations like CT and especially, MRI will help to reach the appropriate diagnosis and as a result, aid in making an efficient plan for the respective diagnosis with least morbidity. It is a great challenge for the clinician but those who have adequate knowledge, competency in surgical skill with well-learned experience will not consider it as a big deal.

Keywords: Big abdominopelvic mass; Ovarian or uterine mass; ultrasound ; CT; MRI; Doppler Ultrasound

Abbreviations: USS: Ultrasound; CT scan: Computed Tomography; MRI: Magnetic Resonance Imaging; Doppler USS: Doppler Ultrasound; CA 125: Cancer Antigen 125; RI: Resistance Index

Big Mass: Is It a Big Issue?

The wonderfulness of being a clinician is that you will have to deal with living subjects in resolving their sufferings from illnesses. By doing so, the clinicians need to be smart in tackling their physical pain as well as relieving their emotional reactions like fear, anger, anxiety and depression. These problems normally arise in difficult and complicated cases.

Almost all clinicians are familiar with the words of either cancer or tumour. A tumour, is also known as a neoplasm in some cases; is an abnormal mass of tissue which may be either solid or fluid-filled (cyst). A tumour does not always being clarified as terrifying cancer in every single case- tumour can be classified into benign (not cancerous), pre-malignant (pre-cancerous), or malignant (cancerous) based on their gross and histological features.

However, those who are not medical professionals will consider a big mass as cancerous as this finding will haunt them in building up the sense of fear and worry in terms of psychology. It is considered to have such kind of correct emotional response. By confronting with clinicians – simultaneously, their clinicians will concern about the tumors. If in the case which presented with big mass, then it may require removal procedures which are followed by further treatments which will be portrayed as a challenge in terms of the clinician skills.

The knowledge and competency learning from medical school and the nature of hierarchical hands-on skill in conjunction with the duration of experience matter the most in solving this kind of problem.

In this article we would like to discuss about the sensible and reasonable approach to get the correct diagnosis

with the appropriate management option based on the case presenting with big mass.

According to medline, there were many case reports informing about a variety of big masses as well as on how to obtain the precise diagnosis and management options which even included robotic surgery. In truth, most of the big masses arise from the uterus or ovarian origin in gynaecology.

The presenting features varied among them- some presented with a typical large mass. Some complaint with abdominal distension or bloatedness. These may be associated with dull lower abdominal pain and various degree of menstrual symptoms. On the other hand, there are others related to constitutional symptoms like weight loss, loss of appetite and pressure symptoms associated with urinary and gastrointestinal tract. Very rarely, there is a likelihood presentation of incidental finding as some may notice it during their fertility consultation.

Normally, the clinicians have to pay attention to the importance of a complete evaluation of patients with common or strange symptoms presenting to them as there is a saying in medicine like nothing is impossible.

Although they presented in different variable symptoms; a definitive diagnosis is not always possible. The final diagnosis was obtained in general with meticulous history taking and thorough physical examination flanked with a systematic utilization of imaging features. The investigations and clinical contexts often provide the short meaningful differential diagnoses before proceeding to the proper management.

Women with a big abdominopelvic mass usually desired more comprehensive search for a diagnosis. Diagnostic evaluation kicks off with a complete set of physical examination and the focus is mainly on abdominal examination. Knowledge of size, shape, surface, contour, nature or consistency, mobility, and general location within the abdomen and pelvis provide a clear clue for the clinician to finally arrive at the most likely diagnosis.

Pelvic examination remains the most widely used method in identifying the origin of the mass arose. It may not be informative and significant sufficiently in big ovarian mass case as the extent of access to the cul-de-sac and deeper pelvis will be outreached. The uterus will be displaced and it is difficult to check the outline of both. Lower pole will be palpable even though and in case of

malignancy – there will be a possibility of metastasis like presence of nodules in POD which is a common metastasized site of the tumor. Therefore, it should always be performed under optimal circumstances [1].

It should be kept in mind that the bladder should be empty first in order to exclude the distended bladder.

Retroperitoneal tumors can be one of the suspicious culprits in pelvic examination.

Cervical cytology may have low sensitivity for the provision of diagnosis [1]. However, it will help to reassure the clinician to proceed with surgery once it had been planned.

Although we frequently use the word “big mass” in our daily life, there may be a difference in subjective acceptance of its size as there is no agreeable standard to set a number for the word like big. To be easy and simplified, big mass used in this article is aimed for the mass which will be more than 10 cm in diameter.

The majority of big masses in women are originated from the genital tract especially in the uterus and ovaries. They may also arise from urinary tract, pelvic soft tissues and the intestines. However, these posed a great challenge for the clinicians to get the precise diagnosis and proper characteristics before proceeding to the well-planned effective treatment to avoid unnecessary morbidity.

The possibilities of big abdomino-pelvic masses are:

1. Genital Tract

- Uterine origin
- Pregnancy (in reproductive women)
- Leiomyoma
- Haematometra(one rare presentation in Ca endometrium- case report)
- Broad ligament myoma
- Tubo- ovarian origin
- Benign ovarian tumour (including cyst)
- Malignant ovarian tumour
- Endometriosis

2. Urinary tract

- Distended bladder
- Pelvic kidney

3. Other

- Retroperitoneal tumour
- Abdominal wall tumour (eg: Desmoid tumour)

With the advent of modern technology, there are more advanced imaging devices which will lend a hand in providing magnificent images; helping us to get the definitive and accurate diagnosis, but this imaging technique also brings along its limitation in the cases related to big mass.

If the mass is too large in such a way that it will be difficult to visualize based on its entirety by ultrasonography, which is often the first-line imaging modality for the primary evaluation. However, both the transabdominal and transvaginal approaches have their limitations in assessing the big mass in terms of its size and nature as well as its origin.

Its finding may be limited and minimised by poor acoustic windows and poor depth of penetration which will indirectly prevent the actual characterization of some masses. It can be executed in differentiating between the solid and cystic nature of the mass. In addition, it is also helpful in detecting the solid-fluid interface [2]. (AJR 2013)

Its value will be expanded with the liberal use of transvaginal approach and the addition of serum tumor markers in the diagnostic package.

Specific diagnostic assays like tumour markers are sometimes useful in supporting the diagnosis. CA 125, HCG, LDH and AFP are reliable tumour markers in some cases.

There are many modalities like Transabdominal Ultrasound (TAS), Colour Doppler ultrasonography (CDUS) and Computed Tomography (CT) which are used to differentiate between the possible diagnoses. However, CT is limited in the pelvis by a lack of soft-tissue contrast, which becomes problematic; for example while trying to differentiate the decompressed bowel from adnexal structures [1]. However, it still plays an important role in clinical practice as it reveals nearly the accurate size, invasion of other organs by the tumour mass, lymph node enlargement and presence of ascites. Therefore, with contrast enhancement, it may help to find out the extent of the disease. It is preferable than ultrasound. A CT-guided biopsy may also be performed although it will be considered cautiously in case of possible malignancy as there will be a possibility of metastasis.

Recently, the magnetic resonance imaging (MRI) has been considered as one of the most effective tool in diagnosing the big abdomino-pelvic mass. In addition, it provides an excellent contrast resolution by illustrating an accurate tissue characterization and improving anatomic delineation [2]. It utilizes the radio waves and magnetic energy instead of X rays. It is not routinely used but it helps to decide the accurate character of the mass and to examine the metastatic spread of the cancer.

Doppler flow studies of ovarian artery is stated in some literature. It may help to differentiate between benign and malignant growths. Normally a high resistant pattern can be seen in benign ovarian mass with (RI > 0.70) while in the case of malignancy, the resistant pattern is as low as (RI < 0.4) due to an increment in vascularity [1].

Radiographic examination may reveal the outline of the pelvic mass and the presence of radioopaque material like bone or tooth in case of benign or malignant teratoma.

Positron Emission Tomography is based on the principle of cancer cells which utilize the glucose at a higher rate and radioactivity tends to get concentrated in malignant areas. The scanner is used to detect the organized spots. The drawback is costly and its use is limited [3].

IVP may be needed in some cases as the ureter may be displaced or compressed resulting in hydronephrosis due to the obstruction by big mass and bladder contour may be disrupted as well. Rare finding of pelvic kidney should be kept in mind.

Contrast X-ray studies can be considered if clinician is suspicious with the presence of GI tumours. Moreover, the consideration of sigmoidoscope, colonoscope in respective cases indicate the finding of intraluminal lesions.

Diagnostic laparoscopy may be helpful in uncertain suspicious causes of internal bleeding due to ruptured big ovarian cyst as in emergency, but its big size will prohibit its use.[4]

In routine practice, most clinicians are competent and experienced enough to exclude the pregnancy if the patient is in reproductive aged group. This is carried out easily by accessible transabdominal ultrasound to detect the viable fetus.

Figure 1: Big Abdomino-pelvic Mass

The following is the algorithm to consider the steps for the diagnosis of big mass (Figure 1).

- H/O* History : -Age, gradual or rapid increase in size, Associated menstrual symptoms, GI symptoms/ abdominal distension, Pressure symptoms, Constitutional symptoms, Fertility problems, Family h/o, Menopausal status, Pap smear
- P/E# General examination = anaemia, weight loss, non-pitting edema, pleural effusion, hepatic enlargement, Cervical lymph node enlargement, cachexia
- Abdominal examination: Big size, Nature, Contour, Lower border, Consistency, Mobility, Ascites
- USS Look for malignant features

Needless to say, uterine fibroids or myomas are the commonest uterine tumour around the world. Their size can vary from the imperceptible on ultrasound to lesions that fill the abdominal cavity. Size does not necessarily correlate with symptoms, the largest often being silent [3].

Fibroids produce a variety of ultrasound appearances

depending on their size, number, position and the type of degeneration. The typical appearance is a well-demarcated, round or oval lesion within the normal homogeneous myometrial echo.

MRI allows the precise determination of the size, location and number of leiomyomas.

However, USS will be the main diagnostic evaluation due to its sensitivity and accessibility.

Most of the big masses are assumed to be arisen from the ovary and generally considered as malignant or cancerous, fortunately, only 20% of all ovarian neoplasms are pathologically malignant [5].

The common benign tumours are serous and mucinous cystadenoma and cystic teratomas. (dermoids).

Literally, benign cystadenomas can be as big as 20 cm while dermoids rarely reached the size of 10 cm. There are distinguished imaging features to differentiate the benign tumours from malignant like solid in nature, multiloculation, internal papillation, papillary

surface excrescences and ascites with bilateral ovarian involvement.

Solidity in ultrasound appearance will suggest malignancy in most of the cases, however, there is still a possibility of benign tumour arising from connective tissue origin varying in sizes from small to heavy tumour mass. Examples are thecomas, fibromas and Brenner's tumour [3].

Evaluation of serum tumour markers in combination with ultrasound finding will increase the diagnostic efficacy in our practice. CA 125 is a surface glycoprotein found on the surface of the cancer cells and on some normal tissues. It increases in 80% of epithelial tumours but has low specificity. A high CA 125 level could lead to a varieties of conditions like pelvic inflammatory disease, endometriosis, tuberculosis, leiomyomas, liver or kidney diseases etc. apart from indicating malignant epithelial ovarian tumour.

Magnetic resonance imaging (MRI) should be reserved for those cases in which ultrasound evaluation is inconclusive or insufficient for clinical decision planning. MRI is particularly useful for characterizing large masses, evaluating their relationship with adjacent structures (namely, adjacent organ invasion and compression), and differentiating masses appearing to have adnexal location on ultrasound but actually having a different organ filiation. MRI is also useful, when an advanced stage malignant tumor is suspected, requiring the assessment of the retroperitoneum [6].

MRI can be usefully employed to confirm or refute the benign nature of the lesion because the property of tissue characterization. Features suggestive of malignancy include demonstration of solid, solid/cystic enhancing masses (greater than 4 cm in maximum diameter) with papillary projections and irregular thick wall and septa (greater 3 mm) into a cystic lesion (the number of septa and the number and dimension of the vegetations can be suggestive of malignancy). Secondary feature includes the presence of necrosis in a solid mass and intratumoral

hemorrhage. Heterogeneous and early enhancement pattern can be suggestive of malignancy. Finally, the ancillary criteria of involvement of pelvic organs or the sidewall, ascites, and lymphadenopathy should be carefully evaluated to distinguish benign from malignant disease [7].

US remains the primary imaging modality in ovarian

masses and its accuracy is more than 90% in differentiation from other pelvic tumour but in a big mass, the coverage of ultrasound is questionable.

CT and PET are primarily used for initial staging and restaging of recurrent disease, whereas MRI can be used as a problem-solving tool for the characterization of complex ovarian masses, and also for staging of known ovarian carcinoma [8].

MRI revealed very high sensitivity for identifying malignant lesions by either modality, but the specificity of MRI was more than double that of US. For epithelial ovarian tumors, the predominant type of ovarian cancer, MRI features are comparable to those seen with CT and US imaging: predominantly cystic lesions with solid components, the major criteria for a malignant diagnosis including a large solid component, with wall and septal thicknesses > 3 mm, nodularity, and necrosis.

MRI enables a specific diagnosis to be made for certain pathologic types and has greater specificity in the diagnosis of malignancy with 91–95% accuracy from differentiating benign from malignant adnexal tumors. MRI should be used for characterization of ovarian masses when US results are indeterminate or equivocal, especially when tumor markers are normal or in young patients when conservative surgery is suggestive [7].

Management

The management of a big mass should involve multidisciplinary team including the general gynaecologist, gynae-oncologist, radiologist, pathologist, urologist, anaesthetist and surgeon.

The discussion among multidisciplinary team and decide on the best appropriate management pathway will lead to less morbidity after the treatment and will earn the most preferable outcome.

The definitive treatment is surgery. Depending on the finding inside, the experienced surgeon will justify to proceed the appropriate type of operation depend on the age and menopausal status, future fertility plan and gross appearance of the lesions although there will be a definitive pre-operative plan.

Normally laparoscopic surgery will not be ventured by the surgeon as there will be higher risks of getting the cyst punctured by inserting ports. Laprotomy will allow the surgeon to help to identify properly all abdominal and

pelvic organs, however, as the mass filled the abdominal cavity and it will hinder the surgical access to remove the whole thing.

Regarding the incision, most of gynaecologists will choose to give lower midline incision as it is easily extendable as well as well-exposed to check the internal organs. There were case reports stated that a topical skin adhesive was applied to the cyst wall and a sterile bag was stuck to the cyst. A small incision was made into the cyst through the bag and 8.5 L of serous fluid was drained and suctioned to prevent spillage into the abdomen. The bag was then clamped and the oophorectomy performed [9].

The technique reported here allows drainage and removal of the cyst through a significantly smaller incision, giving a better cosmetic result while protecting the patient from the potential spread of malignancy that a ruptured cyst could cause.

This technique would be suitable for large benign lesions and could be used with a smaller abdominal incision (e.g. a Pfannenstiel incision) to reduce the risk of adhesions in the future when compared with a midline incision [10]. It would not be recommended when malignancy is strongly suspected. A staging laparotomy would be needed in these cases.

After the surgery, the diagnosis will be confirmed with the histopathological result and depend on the findings, further radiotherapy and chemotherapy will be continued.

In summary, the appearance of big mass will make the patient anxious and frustrated as malignancy cannot be ruled out. Simultaneously, it is indicated to undergo surgery. It will be a very distressing and difficult decision to make from the patient's perspective. For clinicians, correct diagnosis before surgery is very important. Appropriate approach with support from modern technology will help them in solving this challenging problem. We expect the big mass will not be a big issue

anymore in those clinicians with adequate knowledge and competent skill as their concern is only for the best interests of their patients.

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