

Diagnosis of Abdominal Tumours

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The diagnosis in a case of abdominal tumour is made by following the usual procedure of obtaining an accurate history, carrying out a thorough physical examination, and making use of suitable methods of special investigations.

The history should be taken carefully and the various symptoms arranged in chronological order. The physical examination includes a general examination of the patient as well as a detailed examination of the abdomen. Special investigations are resorted to only after the taking of the history and the physical examination have been completed and are such as are suggested by the knowledge gained. The information thus obtained is next evaluated and integrated and a diagnosis is arrived at.

Is the swelling pathological?

The following points have to be settled before a swelling in the abdomen can be regarded as pathological:

1. Is a tumour really present?
2. Is it a normal viscus which is distended?
3. Is it a normal viscus which is displaced?

The following conditions might simulate an abdominal tumour:

(a) A localised contraction of the Rectus Abdominis muscle — the so called Phantom Tumour.

(b) The abdominal aorta in thin persons (students' aneurysm).

(c) The Pancreas occasionally in thin persons.

(d) The Promontory of the Sacrum in those with lax abdominal walls.

(e) The Anterior Superior Spine of the Ilium in fat persons, usually women with lax abdominal walls that overflow over the side of the pelvis. In such patients the A.S.S. of the Ilium may be palpable

through a thick fold of skin and fat and sometimes may give the impression of an abdominal tumour.

It is only necessary to keep in mind these possibilities for mistakes to be avoided.

A normal but distended abdominal viscus may masquerade as a tumour:

(a) The urinary bladder in retention of urine.

(b) The sigmoid colon full of faecal material.

(c) The pregnant uterus.

A distended bladder should always be thought of in cases of hypogastric swellings, and it is a safe rule not to express an opinion before passing a catheter and emptying the bladder. A faecal accumulation in the sigmoid may be suspected from its site and doughy feel — an enema will lead to its disappearance. In the case of pregnancy, especially if illegitimate, the history may be misleading and only the physical signs should be relied upon.

A displaced normal viscus may sometimes give rise to difficulties. The kidney and the spleen are the viscera most often involved. In most cases the viscus can be pushed into its normal position; in some cases however, special investigations become necessary.

Illustrative case. A young man of 22 was admitted into hospital complaining of vague abdominal pains. He was markedly neurotic. On physical examination a retroperitoneal swelling three inches in diameter was discovered just below the umbilicus which was tender on pressure and was slightly movable. An intravenous pyelogram with a wire outlining the tumour on the X-Ray film proved the swelling was an ectopic kidney.

When it is determined that a pathological swelling is actually present, its ana-

tomical level, that is if it is parietal, intraperitoneal or retroperitoneal, is to be ascertained.

Parietal tumours have the following characteristics:

(a) They have little if any mobility apart from the abdominal walls and have only a heaving movement on respiration.

(b) When the abdominal muscles are made to contract by asking the patient to lift his head and shoulders off the bed, their outline is not obscured as in the case of intra and retroperitoneal tumours but usually they become more definite.

Intraperitoneal tumours are:

(a) Mobile unless: i) They have contracted secondary adhesions to the abdominal parietes e.g. a localised appendicular abscess.

ii) They are so large that they are wedged in and unable to move, e.g. a large ovarian cyst which almost fills the whole abdomen.

(b) If connected with the viscera of the upper abdomen (stomach, liver, spleen and kidney) they move with respiration.

Retroperitoneal tumours are:

(a) Fixed or have very restricted mobility.

(b) As a rule they are covered over or crossed by bowel, which gives a resonant note on percussion.

Of course both intra and retroperitoneal tumours have their outline obscured by contraction of the abdominal muscles.

In case of intra and retroperitoneal tumours it is necessary to determine with which organ they are connected. This is determined according to two criteria, 1. the anatomical and 2. the functional.

1. **The anatomical criterion** is the site of the tumour. Thus a swelling in the left upper quadrant is likely to be connected with the Fundus of the Stomach, the spleen or the splenic flexure of the colon; but this rule is subject to exceptions.

Thus a freely movable tumour may leave

the site of the viscus with which it is connected, and present in another region; or the viscus itself, together with the tumour may acquire abnormal mobility and present in a region which is not its normal habitat.

Such difficulties may be overcome by regarding the site of the tumour as the centre of the arc through which the tumour can be made to move. Thus a pedicled fibroid which presents in the umbilical region and which can be moved from the right iliac fossa to the left through an arc with its centre in the pelvis is attached to a pelvic viscus. An enlarged and movable gall bladder can be made to move along an arc centred on the costal margin.

To determine whether a normal viscus, or a viscus with which a tumour is connected, has left its normal site is more difficult and depends on: 1. The demonstration of its presence in an unusual site and/or 2. The demonstration of the absence of the viscus from its normal situation.

In many cases these points can be settled by ordinary means of physical examination; for instance the dullness of the spleen over the last ribs on the left side may be absent and the tumour may have the characteristic notched shape of the spleen; in other cases special X-Ray examination becomes necessary.

2. **The functional criterion.** The history of the case may and often does point to a derangement of function of a particular organ and justifies the inference that, failing evidence to the contrary, the swelling under examination is connected with that particular organ. For instance, if the history and the symptoms point to sub-acute intestinal obstruction, a swelling in the abdomen is likely to be connected to the intestinal tract; whilst a swelling in a patient complaining of urinary symptoms is likely to be connected with the kidney or bladder.

Pathological nature of the swelling.

Whilst the anatomical and functional criteria point to the organ with which a swelling is connected, its nature can only be inferred from a consideration of the clinical findings.

In general, apart from distended or displaced viscera, pathological swellings are either inflammatory or neoplastic, and the latter may be benign or malignant.

Inflammatory swellings have the following characteristics. They are:

1. More or less ill-defined and irregular in shape.
2. Painful and tender.
3. Fixed.
4. Rate of growth is rapid, measured in days and may be irregular.
5. They may retrogress.
6. They are accompanied by general symptoms such as fever and leucocytosis.

Swellings due to localised collections of blood in the abdomen (abdominal hæmatomata) have the following special characters:

1. They form rapidly and then slowly retrogress.
2. The history indicates an injury or fainting or signs of acute anaemia (pallor, thirst, etc.).
3. They are slightly painful and tender.
4. They may show discoloration of the overlying skin.
5. The general reaction (fever and leucocytosis) is mild.
6. They may be accompanied by slight jaundice and an excess of urobilin in the urine.

Benign newgrowths have the following characters. They:

1. Grow slowly and steadily, the period of growth being measured in months or years.
2. Are well defined.
3. Have a more or less smooth surface, sometimes bossed or lobulated.
4. Are movable and not fixed.
5. Are not painful, nor tender.

6. Rarely provoke functional disturbance of the organ with which they are connected unless indirectly by pressure.

7. Do not affect, except late and indirectly, the general health of the patient.

Malignant newgrowths have the following characters:

1. Their shape is somewhat irregular and their outline may be rather indefinite.
2. Their surface may be irregular and their surface is hard.
3. They are prone to lose their mobility and to become fixed.
4. Their rate of growth is fairly rapid (though not as rapid as that of inflammatory swellings) being measured in weeks. It may be irregular, but they never retrogress.
5. They only cause functional disturbance in the organ in which they grow.
6. In the later stages they may be accompanied by ascites (N.B. ascites may be caused by some benign tumours of the ovary).
7. As a rule they are accompanied by early wasting of the patient and signs of general ill-health.
8. In the late stages, they give rise to metastases and cachexia.

Special Investigations.

These may have to be resorted to if by ordinary means a diagnosis has not been arrived at. They may also give useful contributory evidence.

The connection of a tumour with the alimentary canal can be made out by visualising the suspected part of the bowel by means of a barium meal or a barium enema and then palpating under the screen. If the swelling can be moved together with the visualised part of the viscus, it means that the swelling is attached to that viscus.

As pointed out already, the pelvis of the kidney can be visualised either by descending or retrograde pyelography and the site of the kidney, and its connection with the swelling being investigated, can be made

out. It may be useful to outline the palpable swelling by a metal wire attached to the skin by adhesive plaster in order to have a record on the film.

The urinary bladder may be filled up with a radio-opaque solution (e.g. pot. iodide 12%) and rendered visible on the skiagram.

It is seldom necessary to have recourse to the injection of oxygen or air in the peritoneum or in the perinephric space to provide a contrast medium which would render a swelling visible and demonstrate its connections, but if other measures fail this line of investigation may have to be adopted.

Laboratory Investigations.

Laboratory investigations may give useful information. Thus, the demonstration of occult blood in the faeces would strongly indicate a connection with the alimentary tract. Laboratory investigations may and often do give further evidence of disease of a peculiar viscus.

Examination of the stomach contents after a test meal may give important evidence of functional derangement of the stomach.

The presence of occult blood in the faeces is an indication of ulcerative disease in the alimentary tract.

Examination of the urine may give valuable indications of disease of the urinary tract.

Finally, immunity reactions indicate the presence of some special infection or infestation. Thus as an example, a positive complement fixation reaction or the demonstration of hooklets in the aspirated fluid, would be strong evidence that the tumour in question is a hydatid cyst.

Summary and Conclusion.

The steps to be followed in making a diagnosis in a case presenting an abdominal tumour after taking a full and accurate history and making a thorough physical examination to include not only the abdomen but the entire patient, are:

1. To determine that a pathological swelling is actually present.
2. To determine whether the tumour is parietal, intraperitoneal or extraperitoneal.
3. To determine the particular viscus to which it is attached from:
 - (a) Its anatomical situation and
 - (b) From the evidence of functional disturbance.
4. To determine its pathological nature.

Finally, the diagnosis is made by integrating these data with what is known of the pathology of the region.