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Case Report

Colouterine fistula mimicking pyometrium – diagnosis established with multi-detector computed tomography

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Fistulae are a recognised complication of severe diverticular disease. The commonest fistulae are from sigmoid colon to bladder and vagina.[1] Colouterine fistulae, though sporadically reported in the literature, are very rare. Patients often present to gynaecologists with symptoms mimicking a pyometrium. We report a case of a colouterine fistula in a 74 year old lady. A new generation 16 slice multidetector computed tomography (MDCT) scanner with multi-planar reconstruction software was instrumental in establishing the diagnosis, obviating the need for a contrast radiology study.

CASE REPORT A 74 year old woman presented with a two week history of increasingly severe left iliac fossa pain associated with pyrexia, nausea, altered bowel habit, anorexia and a more recent history of a foul smelling green vaginal discharge (necessitating changing up to ten pads daily). A speculum examination by the general practitioner revealed pus emanating from the cervical os, and she was sent to the Accident & Emergency department. She denied any previous similar episodes. She was a non-insulin dependent diabetic of seven years' duration (metformin 850 mg tds; gliclazide 80 mg tds) and had hypertension and aloplecia totalis. Four years previously she was investigated for abdominal cramps and a change in bowel habit with a tendency to constipation. She was found to have diverticulosis on double contrast barium enema.

On admission to hospital she had a pyrexia of 38°C. There was tenderness in the left iliac fossa on abdominal palpation. Routine blood tests revealed normal renal function, a neutrophil leucocytosis and an elevated C-Reactive Protein (275 mg/l, normal <7 mg/1). Vaginal swabs cultured enteric organisms (coliforms) and proteus sp. A limited abdominal ultrasound scan revealed a diffuse pelvic inflammatory mass, and intravenous and oral contrast enhanced abdominal and pelvic multidetector CT was arranged. This revealed a thickened sigmoid colon in keeping with diverticulitis, with a pericolic abscess and surrounding inflammation. A definite communication was seen from the pericolic abscess to the fundus of the uterus, the body of which contained air and fluid (*figures 1 & 2*). The fluid had tracked into both fallopian tubes resulting in secondary bilateral pyosalpinx.

After being informed of the management options, complications and probable need for a stoma she agreed to proceed with surgery. At laparotomy a large pelvic inflammatory mass involved the sigmoid colon, small bowel mesentery, uterus, bladder and both fallopian tubes. In the centre of the mass was a moderately sized thick walled abscess containing

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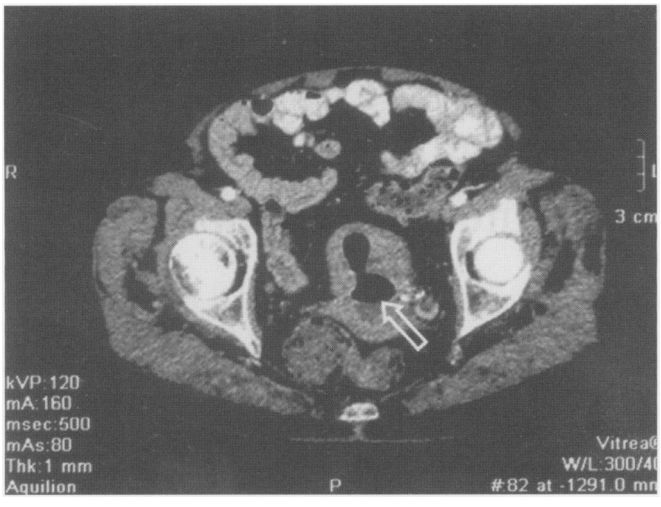

Fig 1. Transverse multidetector computed tomography section showing fundus of uterus with abscess cavity containing air, fluid and debris (white arrow).

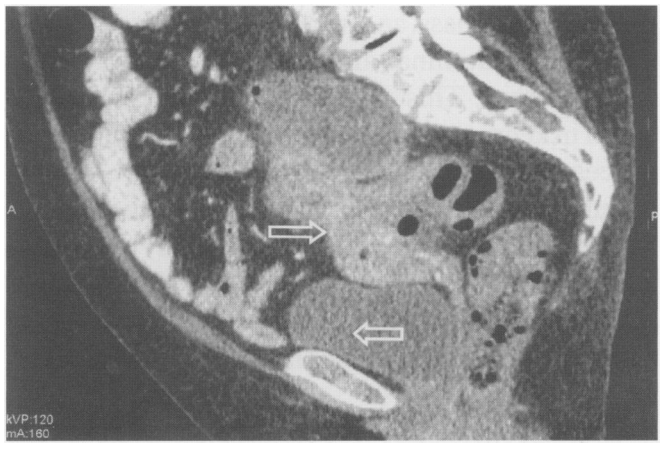

Fig 2. Multidetetctor computed tomography reconstructed in sagittal plane showing fundus of uterus communicating with abscess cavity and thickened diseased sigmoid colon (right facing arrow). The left facing arrow denotes the bladder.

around 50 ml of thick green pus. Pus from this abscess was sent to bacteriology for culture and sensitivity, which revealed similar bacteria to that isolated from the vaginal swabs. The diseased sigmoid colon was carefully separated from the pelvic organs using sharp and blunt dissection. The diseased sigmoid colon was excised, and a stoma raised at a pre-marked site in the left iliac fossa. Primary anastomosis was considered unwise in view of the extent of pelvic purulent contamination and inflammation of surrounding tissues. She made an uneventful post-operative recovery and was discharged home on the tenth postoperative day. Histopathology confirmed diverticulitis with fistula with no evidence of malignancy. She is scheduled to have a reversal of the Hartmann's procedure in due course.

DISCUSSION

The largest review of diverticular fistulae published in the literature is from the Cleveland Clinic, Ohio. Of 412 patients with surgically treated diverticular disease over a 26 year period,[1] 84 (20.4%) patients had internal fistulae. The commonest fistula was from colon to bladder (65%) followed by vagina (25%). Hysterectomies had been performed in 50% and 83% of females with colovesical and colovaginal fistulae respectively. There were three colouterine fistulae, the largest number reported in any one series. A 20 year retrospective review from Canada of 42 patients with diverticulitis complicated by fistula formation revealed the majority of fistulae were colovesical (48%), followed by colovaginal (44%) and one colotubal fistula. There were no colouterine fistulae in this series.[2] A description of 13 genital fistulae caused by diverticular disease highlights the association of colovaginal fistulae in female patients over the age of 50 who have had a previous hysterectomy.[3] The uterus acts as a physical barrier, preventing contact of the diseased sigmoid colon with the vagina. Rarely does the uterus become involved in the fistulous process. There are other sporadic case reports of colouterine fistulas in the literature.[4]

The imaging modality for diverticular fistulae has traditionally been contrast radiology, either rectally or vaginally.[3] A 'charcoal challenge test' has been reported as a diagnostic aid.[5] After a barium enema revealed no fistula tract, orally administered activated charcoal was seen emanating from the cervical os at pelvic examination the following day. Though CT has been described before in combination with vaginography to demonstrate a colouterine fistula,[6] as seen in this case, the new generation multidetector CT scanners are capable of volumetric imaging facilitating multi-planar reformations and three dimensional imaging, obviating the requirement for vaginal or rectal contrast studies. Multidetector computed tomography is synonymous with multislice CT. The isotrophic voxel nature of MDCT acquisition allows for excellent multiplanar reconstructions and improved visualisation of pathology with a shorter acquisition time. These advantages often outweigh

the fact that MDCT exposes the patient to a larger radiation dose than standard CT.

Treatment usually involves laparotomy and surgical resection with (single-stage) or without primary anastomosis, depending on the extent of tissue inflammation, localised sepsis and the surgeon's judgment. If malignancy is suspected an en-bloc resection of the uterus and colon should be carried out.[4] Percutaneous drainage of a pyometrium secondary to a colouterine fistula has been reported as a temporising measure.[7] Hysterectomy is not required if the clinicians are confident the underlying process is benign and arising from colonic diverticular disease. Excising the source of the pathology, the diseased sigmoid colon, will suffice. Interestingly, there is one report in the gynaecological literature of a conservative surgical approach to the management of a colouterine fistula. Surgeons simply primarily sutured the colon after separating the viscera to reveal the fistula, and carried out a hysterectomy with a favourable result.[8] The extent of tissue inflammation and sepsis precluded this conservative option in this case. Specialisation may well have a role in the optimal management of these challenging cases. This is supported by a paper from Quebec, looking at the value of surgical subspecialisation in the outcome for patients operated on for fistulae complicating diverticulitis.[9] When managed by colorectal surgeons (as opposed to general surgeons), there was a reduced stoma rate (5% versus 27%), less complications (27% versus 41%) and a shorter pre (three versus eight days) and post (11 versus 14 days) operative hospital stay. In order to achieve the best outcome for patients, perhaps all cases of complicated diverticular disease should be managed in regional specialist centres.

This case report highlights how a rare complication of diverticular disease can closely mimic pyometrium. The contribution to the literature in this rare disease process is to illustrate how the new generation multidetector CT scanners can focus on the pelvic organs, and with the aid of multi-planar reconstructions, demonstrate fistula morphology obviating the requirement for vaginal or rectal contrast radiology studies.

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