

Peritoneal computed tomography: a diagnostic tool for genital oedema in patients on peritoneal dialysis

A 55-year-old man, who had a medical history of diabetic nephropathy resulting in end-stage renal failure, was receiving continuous ambulatory peritoneal dialysis (CAPD) as renal replacement. He underwent bilateral open inguinal hernioplasty 3 years earlier. He presented with a sudden onset of right scrotal oedema after CAPD. Physical examination showed a non-tender swelling over the right groin and scrotum. An expansile cough impulse could not be elicited and the swelling did not change in size. The nature of the oedema was uncertain after clinical examination. A peritoneal computed tomographic (CT) scan demonstrated the presence of a right indirect inguinal hernia (Fig). A right inguinal hernioplasty was therefore performed. The patient has remained symptom-free over the past 12 months.

Discussion

Localised groin oedema is an infrequent but well-documented complication among CAPD patients, with an incidence ranging from 4 to 10%.¹ Underlying causes include indirect inguinal hernia (around 10-15%),^{2,3} patent processus vaginalis and extravasation of dialysate

from the catheter site. Accurate diagnosis of the nature of genital oedema is crucial for documentation and appropriate management of these patients. Physical examination of an oedematous groin is often difficult and unreliable. A small inguinal hernia defect is frequently devoid of viscera and the cough impulse is absent.

Several radiographic investigations are available for delineating the aetiology of groin oedema in CAPD patients. The value of traditional herniography for investigating the cause of genital oedema in CAPD patients is questionable. Though the sensitivity and specificity have been reported to be as high as 96.6% and 98.4% respectively in a general population with groin pain and swelling, the high false positive (18.7%) and false negative rates (7.9%)⁴ make plain radiographs unreliable tools. Besides, around 2% of patients undergoing herniography with iodine contrast develop post-herniographic abdominal pain syndrome.

Ultrasound imaging is another frequently used diagnostic tool for the examination of genital swellings. Real time visualisation of peristalsis within a herniated loop of intestine confirms the nature of the swelling. The application of ultrasonography has been limited by the fact that the sac is often empty when there is a small fascial defect in this group of patients. Radionuclide scanning of abdominal and groin hernias has been an alternative investigation. Its specificity decreases to around 66% if there is concomitant groin and abdominal oedema. Moreover, a radionuclide scan lacks anatomical information concerning the hernia site and contents of the swelling, if any.

A peritoneal CT scan is valuable for delineating the exact anatomical site of both the hernia and the leakage of dialysate. Its high specificity and sensitivity allows a precise, two-dimensional localisation of the peritoneal defect.⁵ With a 5-mm cut peritoneal CT scan, the abdominal wall and inguinal defects are identified accurately. It can also define the relationship of the inferior epigastric vessels to the hernia sac. This information allows the surgeon to form a precise surgical plan before the hernia repair, since there may be concomitant direct and indirect hernias, a defect in a previous abdominal incision, leakage around the catheter or a patent ductus vaginalis, which can be missed in CAPD patients. It is also an excellent tool for showing the presence of scar tissue and small peritoneal recesses, which can be responsible for the alteration in ultrafiltration, resulting in genital oedema.



FIG . Peritoneal computed tomographic scan demonstrating the presence of a right inguinal hernia

In conclusion, a peritoneal CT scan is the preferred diagnostic tool for the management of genital oedema in CAPD patients. Its findings confirm the diagnosis, provide anatomical details, and help to devise the surgical plan.

SH Wan, MD

H Lau, MD

E-mail: lauh@hkucc.hku.hk

NG Patil, MD

Department of Surgery

WK Lo, MD

SL Lui, MD

Department of Medicine

Queen Mary Hospital and Tung Wah Hospital

University of Hong Kong

Pokfulam

Hong Kong

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