Abdominal catheter migration

Can we really safely abandon a catheter into the peritoneal cavity? [1].

The most prevalent (occurring in 8.6% of shunt-treated patients) and morbid complications is distal shunt tip migration out of the abdomen, resulting in CSF collection in the anterior rectus space.

Is a well-known phenomenon, and intraabdominal shunt tubes have appeared in many inappropriate places.

Complications at the intraperitoneally (ip) lodging distal end of the shunt tube are reported to be from 10% to 30% [2] [3].

Typically, one encounters preperitoneal or ip pseudocysts, shunt infection, shunt dislocation, or disconnection [4] [5] [6].

Also, migration of the abdominal end has been reported on frequently [7] [8] [9] [10] [11] [12] [13] [14].

The most frequently encountered abdominal complication following VP shunting in a group of patients was shunt disconnection with intraperitoneal distal catheter migration. It occurred in eight of the seventeen patients with abdominal complication (47.05%) [15]

It can cause a rise in intracranial pressure as a result of obstruction as well as infection of the central nervous system from ascending infection. Therefore, prompt treatment is warranted to avert a life-threatening condition.

Once shunt dysfunction or abdominal symptoms occur, a thorough physical examination is warranted, especially because VP-shunt–bearing patients frequently are not capable of adequate verbal expression. Neurological symptoms of raised intracranial pressure, such as headache, nausea, vomiting, impaired gait, nuchal rigidity, seizures, and others, in combination with abdominal pain, abdominal distention, abdominal wall rigidity, or local irritation, merit further evaluation by imaging or other diagnostic procedures, such as CT abdomen, endoscopy, or even laparoscopy and should lead to diagnosis. Also, simple X-ray images cannot reproduce an intraabdominal malposition safely. Therefore, the number of such cases may be underestimated. In this case, the incorrect position of the catheter was sufficiently diagnosed by cross-sectional imaging.

Additionally, the valve itself or an abdominal fluid accumulation can be tapped for cell counts and microbiological specimens of possibly infected CSF. Depending on whether the shunt tube is involved in, or surrounded by, infectious material, the system might be left in place after abdominal revision [16].

Despite initial doubts about abdominal CO2 insufflation with a certain pressure, as required for laparoscopic surgery, laparoscopy for abdominal procedures in the presence of a VP shunt has been reported to be feasible [17] , and should be the preferred approach [18] [19].

A VP shunt system virtually crosses interdisciplinary borders. Patients need an individual approach, depending on the kind of dysfunction. Close interdisciplinary management is mandatory for a favorable outcome. Endoscopic or laparoscopic procedures can be a trauma-minimizing means for diagnosis and treatment [20].

Scrotum

see Abdominal catheter migration to scrotum

Case reports

A young female patient with history of multiple shunt revisions in the past, came with shunt dysfunction and exposure of the ventriculoperitoneal shunt tube in the neck. The abdominal end of the shunt tube was seen migrating into the bowel during shunt revision. The cerebrospinal fluid analysis showed evidence of Stenotrophomonas maltophilia growth. This is the first reported case of Stenotrophomonas maltophilia meningitis associated with ventriculoperitoneal shunt migration into the bowel. [21].

2015

Distal migration of the peritoneal catheter and extrusion from the intact skin in an area unrelated to the surgical incision constitute a rare complication.

Oktay et al. report a 1-year-old patient with the extrusion of the peritoneal catheter from the intact skin in the right lumbar region [22].

2013

A 7-month-old infant, who had suffered from intraventricular hemorrhage at birth, was shunted for progressive hydrocephalus. The peritoneal catheter, connected to an 'ultra small, low pressure valve system' (Strata®; PS Medical,Gola, CA, USA) at the subgaleal space, was placed into the peritoneal cavity about 30 cm in length. The patient returned to the hospital due to scalp swelling 21 days after the surgery. Simple X-ray images revealed total upward migration and coiling of the peritoneal catheter around the valve. Possible mechanisms leading to proximal upward migration of a peritoneal catheter are discussed [23].

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