Upward Migration of Lumboperitoneal Shunt in Patient with Idiopathic Intracranial Hypertension: A Case Report

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Abstract

Lumboperitoneal shunt is one of the CSF diversion devices for the management of many causes, like: idiopathic intracranial hypertension, communicating hypertension, CSF leak, Pseudomeningocele, growing skull fractures. Idiopathic intracranial hypertension (IIH) that also known as pseudotumour cerebri, is clinical disorder that diagnosed by an establishment of the symptoms and signs of increased intracranial pressure. Augmentation and ensuring of the tight fixing of the anchoring devices to the fascia of the iliac crest is still the available reliable method for avoiding migration complications that usually presenting with occurrence of the signs and symptoms of increased intracerebral fluid.

Keyword

Upward migration; Proximal; Lumboperitoneal shunt; Idiopathic intracranial hypertension; Pseudotumour cerebri

Introduction

Lumboperitoneal shunt is one of the CSF diversion devices for the management of many causes, like: idiopathic intracranial hypertension, communicating hypertension, CSF leak, Pseudomeningocele, growing skull fractures. Idiopathic intracranial hypertension (IIH) that also known as pseudotumour cerebri, is clinical disorder that diagnosed by an establishment of the symptoms and signs of increased intracranial pressure [1-3]. Vomiting, deterioration of the visual acuity and bilateral papilledema are prominent in the diagnosis [2]. Presence of the high opening pressure on multiple times of lumbar puncture [4]. Cerebrospinal diversion devices like the lumboperitoneal shunt/ventriculoperitoneal shunt [5]. Most of the neurosurgeons choose the lumboperitoneal shunt as completely extra-crani- nal procedure. Migration of the lumboperitoneal shunt is a rare complication [6,7]. Migration is usually distally into the peritoneal cavity, while the upward migration is extremely rare [8].

Case Report

A 14 year old mild obese female patient complained progressive course of deterioration on vision and persistent mild to moderate global headache for about 5 months duration and sought for medical consultation. Fundus examination revealed and established bilateral papilledema. On radiological investigations, magnetic resonance imaging revealed normal architecture of the brain and optic pathway. The patient was diagnosed as pseudotumour cerebri. Medical treatment was started by introducing carbonic anhydrase inhibitor for about 2 weeks and doing follow up occurrence for any improvement in the visual acuity and another fundus examination. Follow up examination revealed the bilateral established severe papilledema plus decreased visual acuity and prepared for surgery. The plan of management was explained for the patient and her parents that include surgical intervention in the form of cerebrospinal fluid diversion device (lumboperitoneal shunt) and then follow up visual acuity and fundus examination. Already the surgical intervention was done and after about 4 days the patient mentioned as marked improvement in the visual acuity. On the fundus examination, one month later resolving papilledema was revealed till normal fundus examination in the post-operative 3 months. The patient came about 6 months, later presenting with sub-acute progressive course of deterioration on vision again and persistent vomiting. New Fundus examination was done and revealed moderate to severe papilledema and Radiological investigations were done. Plain Abdominal-x-ray (lateral, anteroposterior) revealed absence of the system. Computed tomography of abdomen revealed presence of the shunt but migrated up into the spinal canal about opposite level of seventh thoracic vertebrae (T7). The tip of the peritoneal end becomes near totally retracted from abdomen. The patient was prepared for the revision surgery. The old device was totally extracted and a new lumboperitoneal was inserted. More care was taken to prevent augmentation of the bursae knots. The patient record marked improvement of the visual acuity in just hours after the surgery and discharged from hospital after 2 days with excellent status (Figure 1).

Discussion

There are many complications of the lumboperitoneal shunt. Shunt block, infections, persistent back pain, sciatica and CSF leak are quite common but Migration of the shunt is uncommon reported [9-11]. Migration into the abdominal cavity is more common among the reported migration cases [3,8]. Here in this case, we report upward (proximal) migration of spinal canal into the subarachnoid space and downward the abdominal cavity [12,13]. Inadequate fixing of the anchoring device is still most understood cause of migration. Theory of cranio-caudal direction of the CSF flow may induce force on shunt tube in the restoral direction that not totally proved. Another theory of dynamic movements of the vertebrae including the flexion, extension and lateral bending induce the incidence of shunt migration [14,15].

Conclusion

Augmentation and ensuring tight fixing of the anchoring devices to fascia of iliac crest is still available and reliable method for avoiding migration complications; that usually presenting with occurrence of the signs and symptoms of increased intracranial fluid.
Figure 1: Computed tomography of abdomen revealed presence of the shunt.
References