

# An Unusual Complication Of Subdural-Peritoneal Shunt

## Subdural-Peritoneal Şantın Sıradışı Komplikasyonu

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**Abstract:** A subdural-peritoneal shunt was placed in a geriatric patient who had a chronic subdural hematoma (CSH). After the procedure, a second CSH developed on the contralateral side, and this hematoma resorbed spontaneously without further intervention. This patient's treatment is discussed relative to the various subdural-peritoneal shunt options currently used to address CSH. The case is also evaluated in light of our experience with other CSH cases and other reports in the literature.

**Key Words:** Chronic subdural hematoma, subdural-peritoneal shunt

**Özet:** Kronik subdural hematumlu bir geriatric olguya subdural-peritoneal şant yerleştirildi. Karşı tarafta yeni gelişen bir kronik subdural hematom kendiliğinden rezorbe oldu. Bu olgudaki tedavi, kronik subdural hematomlarda bir tedavi alternatifi olarak kullanılan subdural-deneyimler literatür eşliğinde değerlendirildi.

**Anahtar Kelimeler:** Kronik subdural hematom, subdural-peritoneal şant

### CASE REPORT

A 73-year-old woman was admitted with enuresis, confusion, and right hemiparesis. The patient's history included a fall 1 month prior to presentation, and she had developed enuresis, amnesia, and headache 15 days before she came to the hospital. Cranial computerized tomography (CT) revealed a 2 cm-thick heterogeneous chronic subdural hematoma (CSH) in the left frontotemporoparietal region (Figure 1). Craniotomy and membrane excision was performed, and, when insufficient cortical expansion resulted, a subdural-peritoneal shunt was also placed during the same surgical session. The tubing used was the distal section of a ventriculoperitoneal shunt, which was valveless with open ends.

After surgery, the patient was discharged and

made a full neurologic recovery. At a scheduled recheck 1 month postsurgery, cranial CT showed that the collection where the shunt had been placed had completely resolved, but a separate 1.5 cm-thick CSH had developed in the frontotemporal region on the contralateral side (Figure 2). The patient was asymptomatic, however, and it was decided to follow her closely with regular CT scans, and to intervene surgically when and if her condition deteriorated. Follow-up CT in the second postoperative month showed that the collection had decreased in volume, and CT at 3 months showed that the CSH had resolved completely (Figure 3).

### DISCUSSION

The current treatments for CSH, used alone or in combination, are burr hole drilling, craniotomy,

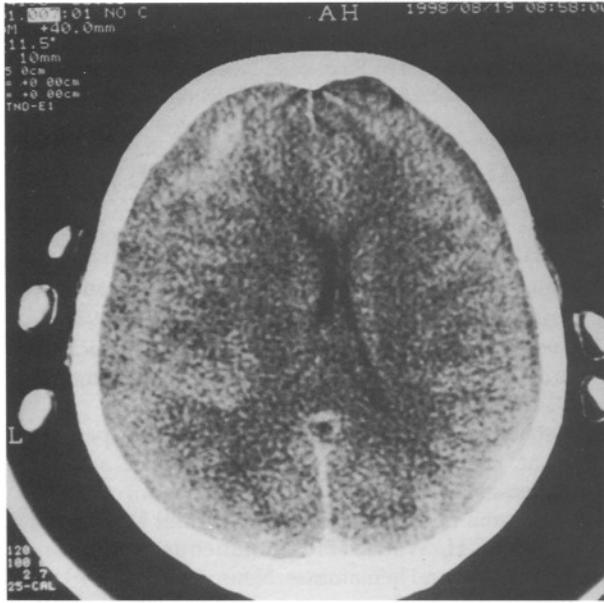


Figure 1. Preoperative CT shows a large heterogeneous CSH in the left frontotemporoparietal region.



Figure 3. Cranial CT in the third postoperative month shows that the second collection resolved completely, without further intervention.

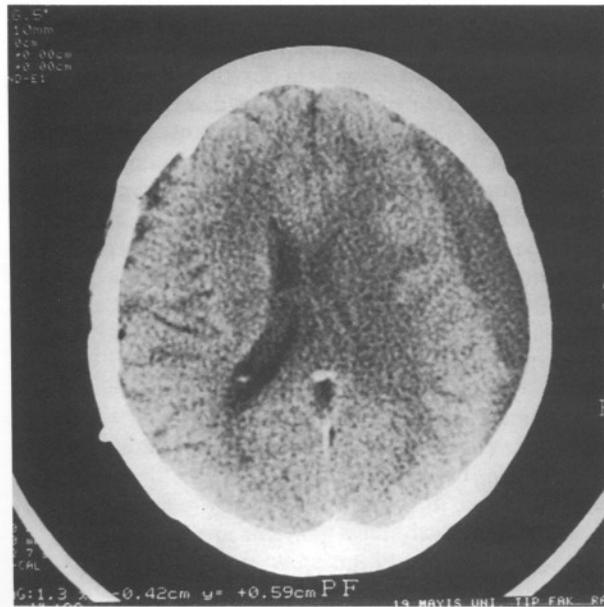


Figure 2. Cranial CT performed 1 month postsurgery confirms that the initial collection where the shunt was placed has completely resolved, but reveals a second CSH in the frontotemporal region on the contralateral side.

closed drainage, drain placement, membrane resection, and subdural-peritoneal shunt placement (1,5,7). None of these procedures has proven to be superior to the others, and patient status and the surgeon's preference usually determine the management choices.

In the case presented in this report, we performed membrane resection and, after noting insufficient cortical expansion, also placed a subdural-peritoneal shunt. Subdural-peritoneal shunt placement has been used in 50 of the 91 CSH cases that have been treated at our clinic since 1993. We use a valveless shunt and enlarge the proximal and distal pores. In hydrocephalic patients, maintenance of adequate ventricular cerebrospinal fluid volume is critical, but there is no such concern when dealing with the subdural space. On this basis, we believe that valves are not necessary for subdural-peritoneal drainage systems, and contend that the use of valveless shunts does not explain the cerebral hypotension that has been reported in some cases. To date, we have encountered no complications (cerebral hypotension included) related to the lack of valves in the shunt. Other authors who have used shunting in pediatric and adult CSH cases have advocated the use of particular shunt and valve types without explaining the rationale behind their choices (1,5). Emphasizing that none of his patients developed complications with hypotension, Probst (5) suggested using medium-pressure valves in shunts for geriatric patients with CSH in order to achieve gradual and well-tolerated cortical reexpansion without cerebral hypotension. However, the same author also stated that, as a general rule, the drainage devices used should not have valves.

Several investigators have documented that the treatment modes of burr hole drilling and craniotomy + membrane resection are associated with a 3-23% rate of CSH recurrence (2,3,6,8). Although there have been no reported problems with infection in closed drainage systems, in these methods the system is open to contamination for 1-4 days, which prevents immediate postoperative mobilization (6,7).

The development of a second CSH on the contralateral side in our patient may represent the first known complication of a valveless drainage system. In line with previous observations of bilateral CSH being successfully treated by unilateral shunt placement in pediatric cases (1,3), our case proves that a contralateral silent collection can disappear gradually without further intervention. Although the scenario is uncommon, CSH has been known to resolve spontaneously without treatment of any kind (4). Concerning the second CSH in our patient, it is impossible to be sure whether this problem resolved spontaneously on its own, or with the aid of the shunt.

We believe that patients with CSH who show none of the associated signs or symptoms should be followed clinically with regular CT scans. Surgical intervention is indicated when the CSH enlarges or the patient becomes symptomatic. In conclusion, we believe that unilateral valveless subdural-peritoneal shunt placement is appropriate treatment for unilateral and bilateral CSH.

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