Subdural Evacuation Port System (SEPS) Placement Location May Alter Radiographic, But Not Clinical Outcomes, And May Result in Unnecessary Secondary Procedures

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Introduction

SEPS devise has been previously compared to outcomes achieved with burr hole drainage showing similar outcomes and recurrence rates. The need for subsequent procedure after SEPS may be as high as 25%. Even small variations in placement may lead to imperfect radiographic results, leading to subsequent procedures for further evacuation of the subdural hematoma. Here we show that poor location of the devise may result in subpar radiographic result, however does not seem to alter the clinical outcome.

Methods

13 patients who received a SEPS procedure for chronic subdural hematomas between August 2014 and March 2015 were retrospectively analyzed. Location of the SEPS devise, radiographic outcome, and clinical outcome were the primary endpoints. Any subsequent procedures and post-secondary procedure outcomes were secondary study endpoints.

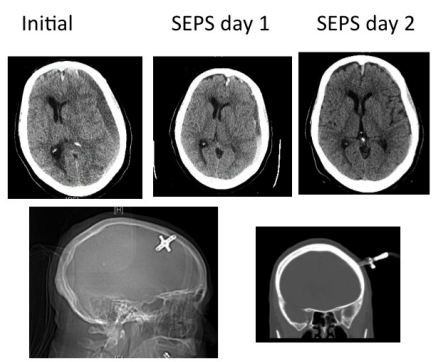
Learning Objectives

By the conclusion of this session, participants should be able to: 1) Describe the importance of clinical benefit of SEPS despite potentially suboptimal radiographic outcome, 2) Discuss, in small groups, association of SEPS placement and the radiographic outcome, 3) Identify SEPS as an effective treatment of chronic subdural hematomas despite probable post-procedure residual

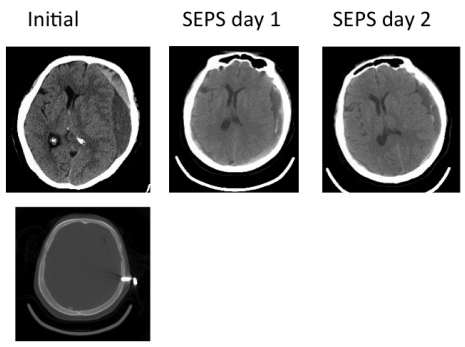
Results

All patients had either stable or improved exams after a SEPS procedure. Significant radiographic improvement was shown in 11 out of 13 patients and complete resolution was shown in 2 patients. However, 5 patients had subsequent burr holes after initial SEPS and 1 patient had a repeat SEPS procedure performed. Suboptimal location of SEPS was present in 3 out of 5 patients who had a subsequent procedure, and 2 patients had re-accumulation secondary to coagulopathy problems requiring a secondary procedure. Patients who had secondary procedures performed because of radiographic appearance alone, did not have a subsequent improvement of neurological status. Only patients who had re-accumulation and worsening of neurological exams benefitted from a subsequent procedure.

Case 1

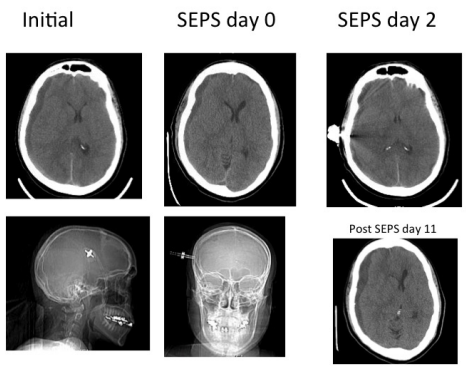


Case 2



Bolt placed too anteriorly on a subdural with loculations and incomplete resolution

Case 3



Patient with leukemia and platelet dysfunction who reaccumulated after initial SEPS and benefitted from a burr hole because of neurological decline

Conclusions

Location of the SEPS device seems to be associated with radiographic outcome, but not clinical outcome. All patients who underwent SEPS procedure improved in the immediate setting. Based on these results we favor continued observation on patients with radiographic residual subdural hematomas after a SEPS procedure if clinically improved, as subsequent secondary procedures do not seem to show any clinical benefit.