A case in which SEAMDURA was used and its replacement with dura mater-like tissue and endurance against infection were confirmed is reported by Dr. Hiroshi Shirozu of the Department of Neurosurgery, Shimane Prefectural Central Hospital.

**A case of the use of SEAMDURA in which its endurance against infection was confirmed**

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SEAMDURA is an absorbable synthetic artificial dura mater, different from conventional artificial dura mater GORETEX®, which has been used to cover defects in the dura mater. Having absorbable and degradable properties, SEAMDURA is absorbed and degraded within approximately 8 months after implantation. As absorption and degradation proceed, SEAMDURA is replaced gradually and finally completely with autologous collagen tissue. We experienced one case of epidural abscess after cranioplasty using SEAMDURA. Here, we report the status of SEAMDURA in that case.

The patient was an 18-year-old male. He developed cerebral embolism followed by acute cerebral swelling, and underwent external decompression. Seventy-eight days later, he underwent cranioplasty, in which GORETEX® used in the first external decompression was removed and replaced with SEAMDURA. About 70 days after cranioplasty, the wound showed signs of infection, and epidural abscess was suspected based on head CT. Without fever or aggravation of neurological symptoms, and with stable wound surface, the patient did not desire operation. Afterwards, however, because of no improvement of epidural abscess and leakage of pus from the wound, the patient underwent bone flap removal (about 150 days after cranioplasty). About 190 days after bone flap removal, cranioplasty was performed. As of 110 days after the last cranioplasty, there were no signs of recurrent infection or head CT findings of subcutaneous or epidural space depots.

**[Surgical findings]**

In the first cranioplasty, in which GORETEX® used in external depression was removed and replaced with SEAMDURA, the incision margin of the normal dura mater and brain surface were adhered without leaking spinal fluid; therefore, some parts were left unsutured with SEAMDURA. On removal of bone flap, although autologous bone was lysed due to infection (Fig.1), clean membrane tissue appeared after removal of epidural abscess (Fig.2). SEAMDURA was completely replaced with connective tissue with indefinite sutures. Partial incision of the membrane revealed brain surface just beneath, and the repaired dura mater was 1 mm in thickness, suggesting formation of sufficient barrier against infection (Fig.3).

In the second cranioplasty, adhesion was noted between the flap and repaired dura mater; however, the repaired dura mater was strong enough to be detached from the flap without being damaged (Fig.4). The custom-made artificial bone BIOBONE® was used in the cranioplasty as bone flap.

**[Discussion]**

SEAMDURA is reportedly absorbed and degraded within approximately 8 months, and completely replaced with autologous tissue. Prior to this SEAMDURA case report, its usefulness in clinical practice had been reported by many institutions. This case, while undesirable for the patient, is valuable in that the status of the dura mater could be observed in re-craniotomy, which was performed approximately 5 months after the first implantation because of signs of infection noted approximately 2 months after SEAMDURA implantation. This observation suggested that the self-repaired dura mater can be strong enough to endure infection and detachment of adhesion, although this depends on the timing of infection.

**[Reference]**