The results are as follows:

The amount of bleeding were measured by iron contents of C.S.F. and histologically studied in relation with the bleeding sites.

The iron contents of C.S.F. and microscopical breadth of bleedings were larger in group 2) than in group 1) even shortly after urea injection in 2), and the largest in group 4).

In 30 clinical cases no relation was found between the grade of injuries and the corresponding iron contents in C.S.F.

The more delayed the contents in recovering their normal values, the more serious the cases were.

69. Our Specially Made Dural Substitute

Japan Made Polyflon Coated Tetron Mesh and Application of α-cyanoacrylate Monomer as Adhesive

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Our dural substitute is the textile of polyflon coated tetron mesh. It is the tetron mesh made in Japan which is coated with Japan made polyflon liquid under high temperature chemical process.

The mesh is classified into 6 grades according to the density of the weaving process. We use now mesh of No. 0 classification which is 0.125 mm. thick and is so finely made that no water or cerebrospinal fluid passes through under normal pressure.

We investigated tissue reactions of U. S. A. made teflon, tetron, polyethylene, and or new material. These materials were transplanted into dog’s muscle and histological studies were made few weeks or months later. Our material showed the least amount of excess tissue reaction and revealed early and proper organization. No excess granulation or adhesion onto the brain tissue were observed or the newly developed neo-membrane over the dural substitute were observed.

We now use Japan made quick adhesive—α-cyanoacrylate monomer and found it very satisfactory on both animal experiments and clinical use. We demonstrated the histological feature of the watertight adhesion, organization of dura substitute, and our adhesive.

We have two years' experience on the clinical use of this dural substitute and reached the conclusion that this material and adhesive is almost ideal.

We demonstrated 18 clinical cases with this dural substitute among 181 brain surgery and believe the relatively indicated use of dural substitute will increase in
number because of this ideal result.

No complication was experienced nor any change of postoperative temperature cause was seen compared with the craniotomies without dural graft.

70. Experimental Studies on the Regeneration of the Skull after Craniotomy

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Authors studied experimentally and histologically on the regeneration of rabbit skull after the craniotomy, in which a small burr-hole was made and buried with the various kinds of bone products such as bonedust, bonedust mixed with alginic powder, thrombin powder, EDH-adhesive, or adhesive α-cyanoacrylate monomer, and “self-curing direct resin”. And the results obtained as follows:

1. When the small burr-hole on the skull was filled up with the autologous bonedust, regeneration of the bone tissue growing from the dura mater was observed within 50 days.

2. When bonedust mixed with alginic powder was used, early hemorrhage from the surrounding of the operative area was hindered, however, the regeneration of bone tissue was comparatively postponed, compared with that using bonedust alone.

3. When bonedust mixed with thrombin powder was utilized, the bonedust was absorbed within 15 days, and the regeneration was retarded.

4. When the “self-curing direct resin” was attached on the defect of the skull, no reaction as a foreign body was observed in the surrounding tissue.

5. In the repair of a small bone defect, adhesive α-cyanoacrylate monomer was proved to be effective to attach a bone plate or a resin plate to the surrounding healthy bone.