

Thrombin Powder와 Gelfoam Powder의 혼합물을 이용한 노출된 망상골면 출혈의 지혈효과*

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= Abstract =

Effect of the Mixture of Thrombin Powder and Gelfoam Powder on Control of Exposed Cancellous Bone Bleeding

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Objective : Excessive bleeding from the exposed cancellous bone surface may cause serious problem such as hematoma formation, infection, transfusion reaction during operation and postoperative period. There are several kinds of bleeding control agent on the cancellous bone surface including bone wax, gelatin sponge (Gelfoam[®]), oxidized cellulose(Oxycel[®], Surgicel[®]), thrombin, microfibrillar collagen(Avitene[®]) etc. In the past, bone wax was used to control bone bleeding but it is associated with increased infection rate and fusion failure. Recently, gelfoam paste has been used to control cancellous bone bleeding. We controlled the cancellous bone bleeding with the mixture of gelfoam powder and thrombin powder.

Material and Methods : Seventeen patients of posterior fusion on the 4 motion segments of thoracolumbar spine were selected to compare the result of bone bleeding control. In the test group of 9 patients, the cancellous bone bleeding was controlled with the mixture of Gelfoam and thrombin powder during operation. In the control group of 8 cases, no chemical hemostatic agent was used to manage the bone bleeding during operation. We calculated the total amount of bleeding from cancellous bone surface during and after operation in the two groups and compared their statistic significance of the result which was judged by student t - test.

Results : The average amount of intraoperative bleeding was 1825ml in control group, 811ml in test group($p < 0.01$). The amount of postoperative bleeding was 943ml in control group and 812ml in test group, there were no significant difference in the amount of bleeding during postoperative period between two groups($p > 0.5$). Total amount of blood was decreased in as much as 1150ml in test group($p < 0.01$).

Conclusion : We concluded that the application of the mixture of thrombin and gelfoam powder on the cancellous bone surface is the effective control method of cancellous bone bleeding for multilevel posterior spinal fusion.

KEY WORDS : Gelfoam powder · Thrombin powder · Cancellous bone · Bleeding control.

서 론

가 가

1911 Hibbs Albee가

1997
1997

2 suction Bone wax 1892 Horsely
가 ponade . Bone wax tam -
가 1).
3)
Bone wax
Gelfoam®, Surgicel®, Avitene®,
Thrombin
2)3)4)5)
Gelfoam®
가
Taheri⁵⁾
gelatin paste
thrombin - gelfoam
4
Harris ³⁾ 2 - inch
osteotome
4ml 1g gelfoam가
gelatine paste thrombin gelatine sponge,
microfibrillar collagen
85%, 75%, 47%
Gelatine paste 가 gelatine
(trabeculae)
가 (stroma)
가
sponge gelatine mi -
crofibrillar collagen
1)5)
gelatine paste sponge가
10 가
gelatine sponge
thrombin
fibriogen fibrin
fibrin
가 1). Cobden
2) Harris 3) gelfoam sponge thrombin
, 61 75%
bone wax,
(staple)
thrombin
1).
Surgicel®, Avitene®, Thrombin

결 과

1,000ml 3,000ml
1825ml .
500ml 1200ml 811ml
1014
ml(55.6%)가
가 (p<0.01).
1920ml 943ml
680ml 1170ml
812ml
2768ml , 1623ml ,
1145ml(41.4%)
가 (p<0.01).

고 찰

bone wax,
(staple)
1).
Surgicel®, Avitene®, Thrombin

가 (10)
 1).
 thrombin
 (anaphylactoid reaction)
 , ,
 ,
 (sensitization)
 1)5).
 gelatine paste
 Gelfoam powder 1g , 125 x
 80 x 10mm Gelfoam® (1.04g) rasp
 powder , thrombin
 thrombin
 , thrombin pow -
 der gelfoam powder .
 가 gelatine 가
 , thrombine
 , thrombin 가 가 ge -
 latine gelatine
 , thrombin
 ,
 가 ,
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 4
 가 . 61 85%
 (41.4%)
 가 ,

가 .
 결론
 gel -
 foam - thrombin가
 1000ml(41.4%)
 .
 가
 ,
 가
 .
 • : 1999 9 21
 • : 1999 11 24
 • :
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