

实验研究

生肌象皮膏珠链治疗家兔骨髓炎实验观察

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摘要 家兔双侧胫骨上部干骺端慢性骨髓炎模型经病灶清除术后,左侧骨髓腔内植入生肌象皮膏珠链,右侧对照。经肉眼和病理切片观察,结果显示:实验侧骨髓腔内血凝块形成少消失快,肉芽生长丰富健康,很少形成多发性脓肿。实验侧局部脓性液形成增多,第5~10天最明显,珠链除后脓性液迅速减少,随之创口愈合。

关键词 生肌象皮膏珠链 慢性骨髓炎

为了开发新型中草药骨髓腔内置药物,我们选用生肌象皮膏,适当改变剂型,制成珠链状,植入家兔慢性骨髓炎骨髓腔内,观察局部反应。

材料与方 法

1. 材料:(1)大耳白家兔,体重 2.0~2.8kg,雌雄兼用,由浙江中医学院动物房提供。(2) 3×10^8 /ml 金黄色葡萄球菌悬液,菌种采自临床慢性骨髓炎病人创面。(3)生肌象皮膏珠链。自行制备,依据玉宝泉等介绍之生肌象皮膏制作方法^[1],调整蜂蜡和香油比例,使之冷却后由原油膏状变成硬膏状,制成直径 3mm 硬膏药珠,简称药珠。薄型尼龙丝袜剪成尼龙网条,单层包裹药珠,一个零的医用尼龙线手缝成珠链,简称珠链。保存于棕色瓶内,实验前用 75% 酒精浸泡 15 分钟。

2. 方法:

(1)慢性骨髓炎造模方法:参照沈霖等方法^[2],家兔双侧胫骨上干骺端慢性骨髓炎造模。造模后第 35 天,对体温基本正常或稍高,小腿上端持续局限性红肿热者,或兼有局部脓肿形成者,或兼有溃破形成窦道者,视为慢性骨髓炎造模成功。

(2)取双侧慢性骨髓炎造模成功家兔 40 只,随机编号,双侧小腿分别常规消毒,局部 0.5% 普鲁卡因浸润麻醉,切开皮肤,排除软组织内脓液,生理盐水冲洗,经骨窦道刮除死骨及炎性肉芽,再以生理盐水反复冲洗。右侧缝合皮肤,作为对照组。左侧作为实验组,在骨髓腔内植

入珠链,含药珠 2~4 枚,以填满空腔为度,缝合皮肤,留一珠链的线头于皮外,为以后拉除珠链用。创可贴外敷保护。单口笼养。青霉素 10 万单位/只,肌注,每日 1 次,共 3 天。

定期观察各动物局部及全身情况,并记录。珠链植入后第 3、7、14 天各杀死动物 6 只,第 35、42、49、56 和 63 天分别杀死动物 2 只。另外 12 只于珠链植入后第 14 天拉除实验侧珠链,植入后第 21 天和 28 天(即拉除珠链后 7 和 14 天)分别杀死动物 6 只。所有动物均以颈动脉放血杀死,切取病变组织,以 10% 福尔马林液固定,经脱钙后,以骨孔中线——胫骨外侧嵴为轴线纵切为两半,内侧半肉眼观察髓腔内改变,外侧半去除珠链后制成石蜡切片,HE 染色,光镜观察。

结果

1. 外观局部反应:为便于记录及统计分析,制订外观局部反应指数,标准见表 1。

表 1 外观局部反应指数标准

外观局部反应情况	反应指数计分
- 正常	0
+ 红肿热,脓包 < 0.3cm,无窦道	1
++ 脓包 < 1cm 或脓包 < 0.3cm 有窦道	2
+++ 脓包 < 2cm 或脓包 < 1cm 有窦道	3
++++ 脓包 > 2cm 或脓包 < 2cm 有窦道	4

生肌象皮膏珠链植入家兔慢性骨髓炎骨髓腔

后可致脓性渗出增多,以第 7 天为高峰($p < 0.05$)14 天后逐渐减少,并接近对照组。当珠链去除后,脓性渗出物在 3~7 天内逐渐减少,随之窦道闭合。

2. 骨腔肉眼所见病理改变

(1)珠链植入后第 3 天,两侧骨腔及附近软组织内均有大片血凝块,实验侧血凝块小于对照侧。第 7 天,实验侧骨腔内及软组织内血凝块明显少于对照侧,骨腔内更明显。第 14 天实验侧骨腔内几乎看不到血凝块,对照侧仍可见多少不等机化血凝块。(2)实验侧珠链周围一般有稠厚淡黄脓样物,(两侧不明显)。第 3 天较少,第 7~14 天较多,以后逐渐减少。脓样物充满骨腔内空余间隙,并经骨孔达邻近软组织形成脓包。有 2 例,珠链脱出骨孔位于软组织内,周围亦有脓样物形成。第 21、28 天(即珠链去除后第 7、14 天),脓样物明显减少。第 42 天后珠链周围仍有少量脓样物,水份减少呈脓苔状。(3)珠链植入后第 7 天,两侧骨腔均可见肉芽生成,实验侧肉芽量多,基本覆盖骨腔壁,对照侧量少,大部分骨腔壁仍裸露。第 14 天,实验侧肉芽丰富,并长入珠链间隙,对照侧肉芽相对较少,仍有部分骨腔壁裸露。实验侧,若珠链未能充满骨腔,则珠链紧靠之骨腔壁肉芽丰富,其余骨腔壁肉芽较少。实验第 21、28 天(即珠链去除后第 7、14 天),原珠链所占空间被肉芽迅速占据,骨内空腔消失,趋向愈合。珠链去除后第 7 天,实验侧骨内空腔消失率为 4/6,同期对照侧为 2/6。珠链去除后第 14 天,实验侧骨内空腔消失率为 5/6,同期对照侧为 2/6。(4)实验侧 7 天后很少形成多发性化脓灶(发现 2 例),对照侧常在骨内形成多发性化脓灶(发现 12 例)。(5)珠链植入后 14 天及之前,珠链与周围组织结合较松易去除,之后结合较紧不易去除。35 天及之后珠链与周围纤维组织紧密相连,药珠常不能整个挖出,捣碎去除后,有一层药连同尼龙网粘附在组织上,小心剥离下来的尼龙网基本完整,上面附着少量纤维组织。

3. 光镜下局部病理改变:珠链在家兔胫骨干骺端慢性骨髓炎骨腔内植入后的病理变化符合化脓性炎症改变,与对照侧相似。第 3 天,胫骨干骺端组织充血、水肿、广泛出血,并有大量纤维蛋白渗出和大量嗜中性粒细胞浸润,以及多量散在的单核细胞和多核巨细胞浸润。7 天后,两侧胫骨干骺端均可见局灶性脓肿形成,周围肉芽组织逐渐增生,嗜中性粒细胞减少,淋巴细胞、浆细胞增多。实验侧一般形成以珠链为中心的单个脓肿,很少发现多发性脓肿。对照侧在各时期均常可发现散在的多发性脓肿存在。多发性脓肿可出现在骨膜下,机化血凝块内及邻近骨组织内。部分区域可见局限性充血水肿,中性粒细胞增加等急性发作现象。实验侧所形成的局灶性脓肿周围,炎性肉芽丰富,排列较整齐。

讨论

本实验结果提示生肌象皮膏珠链植入家兔慢性骨髓炎骨腔内,可使骨腔内淡黄色脓样物增多,与生肌象皮膏创面外敷^[1]相似。脓液增加以第 5~10 天为显著,之后逐渐减少并变稠厚,但持续存在。同时骨腔内肉芽迅速生长,7 天基本覆盖骨腔壁,14 天肉芽长入珠链空隙,符合“假脓长肉”现象。实验中还发现珠链与骨腔壁紧密接触处,局部肉芽生长健康,较大的残余空腔内脓样物积贮,其骨腔壁肉芽生长较差。其机理有待进一步研究。

本实验所提示的珠链对机体的局部作用,应是构成珠链多种成份的复合作用,即包括中药、赋形剂蜂蜡和香油及尼龙丝。各种成份在其中所起的作用有待进一步研究。

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(收稿:1994—03—21 修回:1995—02—15)

Abstract of Original Articles

Application of integration of TCM and modern medicine in elevation of operative effect in treating prolapse of lumbar intervertebral disc

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Operative treatment of prolapse of lumbar intervertebral disc is not difficult, but reoperation of part of the cases were carried out due to improper master of indication, incorrect localization, improper operative style or technical fault ect. In elevation of operative therapeutic result, better effects were obtained after proper indication being mastered, applying Chinese herbs postoperatively and early physical exercise being used. One hundred and ten cases were operated, no one case needs reoperation. The rate of excellent and good was 98.1%.

Key words Prolapse of lumbar intervertebral disc Indication of operation Integration of traditional Chinese and modern medicine

An analysis on biomechanics in fixation of fracture of clavicle with steel wire perforating and annular ligating method

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Based on characteristics of anatomy and types of fracture of clavicle, steel wire perforating annular ligating method was designed, i. e. two wholes at one level were perforated on two ends of fractured clavicle, then a diameter of 0.3mm steel wire was passed through them and fixed with annular ligation, And it was compared with Kirschner's pin based on biomechanics. It was realized that the former bears advantages of antiwinding effect and anti-torsion strength. The mechanism of steel wire perforating annular ligating method was discussed.

Key words Steel wire perforating annular ligating method Clavicle

Experimental observation of rabbit osteo myelitis treated with Sheng Ji Xiang Pi Gao chain

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Models of chronic osteo myelitis in bilateral upper epiphyseal end of tibia of the rabbits were treated with debridement of the lesion, then Sheng Ji Xiang Pi Gao chains were implanted in the left bone marrow, the right side served as control. Through gross and pathological slice observation, the results showed that there were less and quick disappearance of blood clot within the marrow, and the granulation grew abundantly and healthy, very less formation of multiple abscesses in the experimental side. The local pus formation as increased on the experimental side, it was most prominent at 5th-10th day. The pus was decreased immediately after removal of the chain, then the wound was healed afterwards.

Key words Sheng Ji Xiang Pi Gao chain Chronic myelitis Rabbit

Motive study of fibrin binding protein in wound healing-Mechanism of Wei Nong Zhang Rou (IV)

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Thirty-two rabbits were selected to make infected wound surface models to observe the motive changes of fibrin binding protein and contents of it at the wound surface, and the influence of external application of Chinese herbs. The results of experiment indicated that there were positive correlation of fibrin binding protein and wound surface healing time, but there were evident negative correlation with wound fibrin. Application of Chinese herbs can elevate prominently in wound surface fibrin, there were significant difference($P < 0.01$) as compared with the control. This suggested that external application of chinese herbs is a good regulation of wound surface fibrin. It can elevate contents of wound surface fibrin, increase local anti-infective and repairing ability of injury and reach the aim of accerelate wound healing.

Key words External application Chinese herb Fibrin binding protein Wound healing

Thirty nine cases of fracture of clavicle treated with fixator

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Thirty nine cases of fracture of clavicle were treated with self-designed fixator with better results. Among them, three cases were failure due to operation and another therapeutic method had to be used. Thirty six cases were discharged at 4th-6th week postoperatively. Among them, 8 cases were reduced anatomically, 16 cases near anatomically, one case had displacement evidently, and one was mild dislocated, with a rate of excellent and good of 89.2%. A follow-up of 3 months to 3years postoperatively were carried out, all cases were healed in good condition. Two bone holding forceps were used to hold the fractured ends of two sides subcutaneously, then moved the forcep according to the position of two ends, regulating the screw to check if any displacement was found to obtain accurate reduction. The fixator was fixed on the chest wall by means of crossed wood splint and pressed-screw action. Due to the instrument is light and small, so it wouldn't influence the patient to wear clothes and action. Exercise was taken to improve healing. It was due to strong fixation, so it offers a googcondition in bone healing.

Key words Fracture of clavicle External fixator External fixation