

川芎嗪注射液对实验性屈肌腱粘连的影响

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摘 要:本实验观察了川芎嗪注射液对鸡屈深肌腱粘连模型的影响,并与具有抗组织粘连作用的二甲基硅油及生理盐水进行对照。结果显示:川芎嗪与硅油组的损伤肌腱滑动功能好且粘连面积小,与盐水组比较有显著性差异($P < 0.05, P < 0.01$)。而在肌腱的修复方面,川芎嗪又明显优于硅油组。表明:在损伤肌腱的鞘管内局部运用川芎嗪注射液既可减轻其腱周粘连,又不影响肌腱自身的愈合过程。

关键词:川芎嗪注射液 屈肌腱粘连 实验研究

手指屈肌腱损伤后,无论作一期修复或肌腱移位,往往发生术后粘连。1988年6月以来,我们经过大量预实验筛选,初步发现川芎嗪注射液有较好的防治屈指肌腱粘连的功效^[1]。本文在此基础上进行了相关实验观察。报道如下。

材料与方 法

1. 实验动物:纯种、同期孵化的12个月来亨公鸡60只,体重2.0~2.5kg。2. 实验用药:磷酸川芎嗪注射液(50mg/2ml),广东利民制药厂生产(批号:890610)。二甲基硅油,四川晨光化工研究院生产(批号:89~3~13)。3. 实验方法及分组:实验鸡经5%苯巴比妥纳300mg/kg腹腔麻醉后,分为3组。

(1)川芎嗪组:取左、右第二趾掌侧线行切口,切开皮肤及鞘管,游离屈趾深肌腱,将肌腱横断周径的1/2,再从横断处各向近、远端纵向断离0.5cm,造成肌腱不全断裂。将切断的肌腱瓣用6/0无创伤涤纶线“8”字缝合于原位

后,从腱鞘切口处插入一根直径为0.5mm聚乙烯导管,向内注射川芎嗪注射液0.5ml,拔出导管,用9/0涤纶单丝缝合鞘管,止血缝皮。

(2)硅油组:取双足中趾,按上法手术后,注射二甲基硅油0.5ml。

(3)盐水组:取双足第四趾,手术后注射生理盐水0.5ml。

术后鸡足均用管型石膏固定于伸直位。并于术后1、2、3、4周各处死15只鸡。其中5只鸡(每组计10爪)用于力学测定;5只行组织计量测定;5只作大体标本及组织学观察。

观察指标及结果

1. 趾屈曲度的测量:从膝部断离下肢,先测量各趾伸直位时趾尖到掌趾横纹的距离,再从踝部内侧方解剖出各趾深屈肌腱,在每条肌腱近端悬吊一重200g的砝码,使鸡趾在重力下屈曲,再测量趾尖到掌趾横纹距离,用两者之间的差值表示趾屈曲的程度。结果见表1。

表 1 各组趾伸屈差值 (mm $\bar{x} \pm SD$)

时间	各组爪数(只)	川芎嗪组	硅油组	盐水组
1W	10	22.43±3.07	23.22±1.63	21.86±2.24
2W	10	18.33±2.93**	19.16±2.17**	14.93±4.28
3W	10	17.61±3.28**	19.09±2.43**	14.62±4.86

注:与盐水组比较 ** $P < 0.01$

表1可见,术后第2周起川芎嗪组与硅油组趾伸屈差值明显大于盐水组,统计学处理有极其显著的差异。

2. 肌腱从鞘管内拉出力的测定:将实验

趾从趾趾关节处离断,再切断其趾深屈肌腱的末端腱钮,用YQ-Z-8型提锤式拉力试验机(四川省长江造纸仪器厂,出厂编号:823)将肌腱从鞘管内拉出,以观察各组损伤肌腱的滑动

功能。结果见表 2。

表 2 各组肌腱从鞘管内拉出力(速度:2.5cm/min,单位:kg,x±SD)

时间	各组爪数	川芎嗪组	硅油组	盐水组
1W	10	0.91±0.34	0.83±0.31	0.87±0.36
2W	10	1.18±0.22	0.94±0.36*	1.37±0.46
3W	10	1.30±0.51**	1.41±0.41**	3.11±0.69
4W	10	1.43±0.42**	1.21±0.52**	3.65±0.71

注:与盐水组比较 *P<0.05, **P<0.01

表 2 可见,硅油组肌腱拉出力最小,川芎嗪组次之,自第 3 周起与盐水组比较有极其显著的差异。

3. 腱鞘间隙面积测定:以肌腱缝合部为中点截取 2cm 趾段(全部包含手术范围),再将深屈肌腱三等分纵向取 2 个切面(约 70μm 取一

切面),常规石蜡片,H-E 染色,在 LEITZASM 68K 电子计算机图像分析仪上分析每个切面存留的腱鞘间隙面积,每条肌腱的三个切面取均值后,作统计学处理,结果见表 3。

表 3 各组腱鞘间隙面积测量 ($\bar{x}\pm SD$ mm²)

时间	各组肌腱数(条)	川芎嗪组	硅油组	盐水组
1W	10	0.1174±0.0427	0.1249±0.0376*	0.0941±0.0318
2W	10	0.0937±0.0251*	0.1016±0.0328*	0.0629±0.0374
3W	10	0.0816±0.0327*	0.0854±0.0222*	0.0488±0.0168
4W	10	0.0812±0.0262*	0.0853±0.0204	0.0469±0.0217

注:与盐水组比较 *P<0.05

表 3 可见,川芎嗪组与硅油组腱鞘间隙面积明显大于盐水组,统计学处理差异有显著性。

4. 大体标本及组织形态学观察:在实验鸡趾手术中心处仔细剥离鞘管,进行大体标本观察。同时纵切面取材,常规石蜡切片,在光镜下重点观察肌腱愈合情况。

手术后第 1 周:大体标本见盐水组肌腱与皮下组织广泛粘连,肌腱断端基本连接,呈梭形膨大,色白。组织学检查见断端呈肉芽组织形式,但纤维母细胞排列不规则,腱纤维轻度萎缩。硅油组见肌腱缝合处与腱鞘轻度粘连,肌腱断端间尚有少量血块。光镜下见肌腱断端轻度坏死,其间见红细胞瘀积及少量白细胞浸润。川芎嗪组肉眼见纤维鞘管已愈合,肌腱已

连接。腱与鞘管有粘连,但易分离。光镜下见纤维母细胞伸入断端,腱组织轻度萎缩。

术后第 2 周:肉眼见盐水组肌腱已愈合,但与周围组织粘连较紧且广泛。光镜下见增生之纤维母细胞产生胶原,少部分与肌腱平行,纤维母细胞和萎缩的腱细胞之间有移行过度形态。硅油组见腱已连接,肌腱表面与周围组织轻度粘连。少量增生的纤维母细胞已伸入断面,腱组织呈萎缩形态。川芎嗪组在缝合处局部与纤维鞘管粘连。有大量纤维母细胞伸入及胶原产生,与腱细胞平行,有移行过度形态。

术后第 3 周:盐水组见腱愈合处膨大,与周围组织紧密粘连,有约 0.2cm 厚的一层纤维组织包裹,与腱床也有粘连,需用锐解剖方可分离。胶原纤维量增多,与腱组织平行排列。硅

油组肌腱仍未完全愈合,仅纤维组织量稍增多。川芎嗪组见肌腱与鞘管局限性粘连,但较易分离。大量胶原纤维形成,细胞量减少。

术后 4 周:盐水组肌腱虽愈合良好,但肌腱与腱周组织及腱床广泛紧密粘连。肌腱内大量增生的纤维组织与腱组织排列一致,腱细胞丰富。硅油组肌腱愈合不完全,与周围组织呈局限性粘连。纤维母细胞产生的胶原量少,腱细胞仍萎缩。川芎嗪组肌腱愈合良好,色泽正常,除手术缝合处有小范围粘连外,余鞘管光滑完整。光镜下腱细胞较肥胖,增生纤维组织呈波浪状,提示损伤肌腱已呈腱性愈合。

讨 论

本实验在既往研究的基础上,进一步观察了川芎嗪注射液对屈肌腱粘连的影响,并与具有抗粘连作用的二甲基硅油及生理盐水进行对照。结果显示,川芎嗪组与硅油组损伤肌腱的滑动功能好,伤趾屈伸活动度大,与周围腱

鞘粘连的面积小,程度轻,与盐水组比较均有显著性差异($P < 0.05, P < 0.01$)。表明川芎嗪注射液与硅油一样,对鸡足趾屈肌腱粘连模型有较好的防治作用。在肌腱愈合过程的组织学观察中,硅油组肌腱断端纤维增生量少,肌腱修复差,提示该药虽可抗粘连,但影响肌腱愈合。盐水组纤维增生量虽多,肌腱愈合程度好,但这是一种伴随着腱周性粘连的愈合,是腱周组织参与修复,大量肉芽进入肌腱断端的结果。川芎嗪组肌腱修复的程度明显优于硅油组,而与盐水组无明显差异,这表明川芎嗪注射液在防治肌腱外周性粘连的同时,并不影响肌腱自身性愈合,是一种较理想的抗屈肌腱粘连药。

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中国中医研究院是卫生部直属的中医药科研中心和治疗、教学基地,经过四十年的创业,在国内外享有崇高的声誉。其下属的华佗学校是从事将祖国医学极其特色的诊疗技术普及、推广的专门教学机构。

温灸在中医治疗学上占有重要的地位。古有“一针、二灸、三药”之说,因其治疗范围广,尤其对虚损性疾病疗效卓越,且方法简便易学而深受人们青睐,温灸法与针法一样,有其独特的系统理论和临床操作方法。可以弥补针法在治疗上的不足,且与针法相辉成映,共同构成特色的中医针灸体系。

本学习班旨在通过本专业专家教授讲课,系统地掌握温灸理论和实际操作。同时介绍“中国温灸器”的使用方法。学习方法分函、面授。

面授:学期十天,学杂费:195 元。第一期:3 月 28 日以前为报名时间;第二期:4 月 20 日以前为报名时间;第三期:5 月 5 日以前为报名时间。

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备有简章:来函即寄。

Abstract of Original Articles

A motive study of the capillary permeability during wound healing — First session of research program on “leaning on the pus to promote regeneration”

Li Xiu-lan 李秀兰 Han Hui 韩慧 Shi Yi-jian 师宜健

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Improved Saba capillary permeability experiment method was adopted in studying the mechanism of external application of Chinese herbs based on the theory of “leaning of the pus to promote regeneration” over the wound surface. The result of experiment indicated that external application of the Chinese herb could enhance local capillary permeability of the wound surface. There was significant difference ($P < 0.05$) between external application of the Chinese herb group and the control group during middle stage of healing of the wound surface with local fluorescent concentration method. But there was no significant difference ($P < 0.05$) between them with local plasma fluorescent clearance rate method and urinary excretion rat. It suggested that external application of the Chinese herb did not influence the capillary permeability of the body as a whole. It bears prominent regulating action of local capillary permeability.

Key words Capillary permeability External application of Chinese herb
Healing of the wound surface

(Original article on page 5)

Influence of experimental adhesion of flexor tendon treated with Injection Chuanxiongqin (CXQ)

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In this article, the influence of Injection CXQ in the treatment of adhesion of chichen deep flexor tendon model was observed and it was compared with antiadhesive action of dimethicone and normal saline. The results showed that sliding function of the CXQ and dimethicone group was better in small adhesion surface of the injured tendon. There were significant difference ($P < 0.05, P < 0.01$) as compared with normal saline group. But in aspect of repairment of the tendon, the CXQ group was superior than the dimethicone group. It indicated that locally application of injection CXQ within the sheath of the tendon bears both the action of alleviation of the peri-tendoneous adhesion and doesn't influence of healing process of the tendon itself.

Key words Injection Chuanxiongqin Adhesion of flexor tendon
Prophylactic and treatment

(Original article on page 8)

Electrophysiological study on rabbit sciatic nerve after clamp injury

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In this article ,the results of electrophysiological study on rabbit sciatic nerve after clamp injury indicated that firstly there were prolongation of insertion potential of EMG ten days after injury of the nerve,the duration shortened gradually along with regeneration of the nerve. Secondly ,regeneration small potentials could be recorded at 20 days post—traumatically. Thirdly, induced muscular contraction potentials could be recorded 30 days after nerve injury . Fourthly, the average standard nerve regeneration velocity was 2. 93mm/day,the utmost being 4mm/day. The aim of study is to offer a clinical criteria of nerve regeneration and a reference of related researches.

Key words Sciatic nerve Electromyography
Nerve regeneration Rabbit

(Original article on page 11)

A comment on treatment of traumatic obstinate swollen of the limb based on the theory of phlegm

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In this article ,treatment of traumatic obstinate swollen of the limb based on TCM theory of phlegm obtained good results. Thirty six caese were treated and cured copmletely. The theoretical basis and foundation of treatment based on the theory of phylegm were discussed in detail.

Key words Swollen of limb Traditional Chinese medicinal therapy

(Original article on page 13)

A preliminary exploration of biomechanics on fracture of tibial plateau treated with prize—poke reduction method

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Ten cases of fracture of tibial plateau treated by prize—poke reduction method with bone fracture round mail. Two nails were applied simultaneously in 4 cases of which the degree of cave in excessed more than 10mm. The remote therapeutic results after reduction were good in 7 cases;3, fair. Analysis of the principle based on biomechanics of reduction with the prize—poke method ,fixation and physical exercise were performed, it is realized that it coincides with the principle of biomechanics.

Key words Fracture of tibial plateau Prize—poke method Biomechanics

(Original article on page 31)