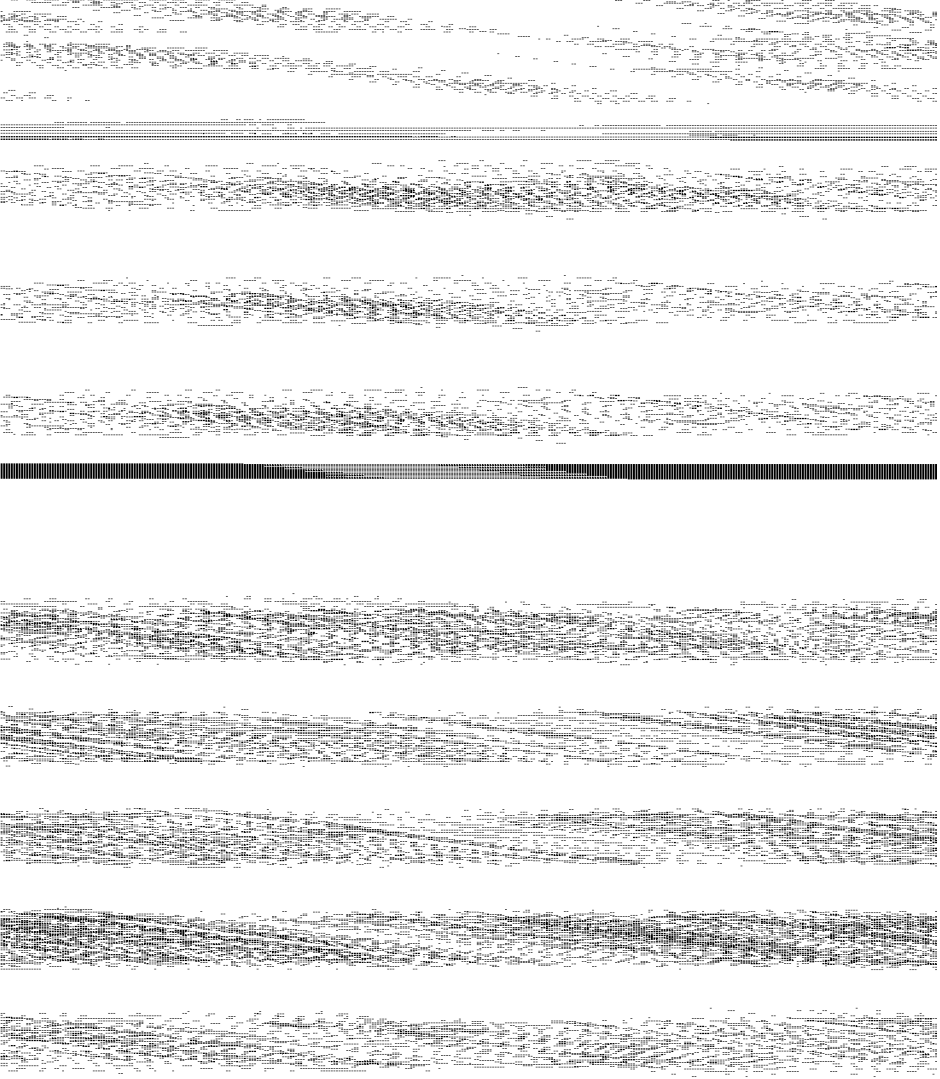
?1994-2016 China Academic Journal Electronic Publishing House. All rights reserved. http://www.cnki.net



?1994-2016 China Academic Journal Electronic Publishing House. All rights reserved. http://www.cnki.net

表3 肝圆韧带管壁结构成份相对含量(%)($\bar{x}\pm s$)及C/E比值

Tab 3 Relative content of structural components and C/E value in the wall of the ligament teres hepatis (%)($\bar{x}\pm s$)

Components	Subaponeurotic portion	Free portion	Fissure portion	Umbilical-portal vein junction
EF	18.44±4.21	18.34±3.24	17.68±3.62	14.63±2.48
CF	44.59±8.66	49.21±5.82	51.79±6.24	42.79±4.42
SM	20.02±2.58	21.44±3.38	23.54±3.46	26.21±3.24
C/E	2.42	2.68	2.93	2.93

Magnified 15×10

肝圆韧带腱膜下段、游离段、裂隙段及脐门连接处的弹性纤维的相对含量之比为:1:0.99:0.96:0.79;胶原纤维相对含量之比为:1:1.11:1.16:0.96;平滑肌相对含量之比为:1:1.07:1.18:1.31。由上可见管壁结构成份以胶原纤维为主,弹性纤维及平滑肌次之($P<0.01$),且各段之间三种成份相对含量均较为接近($P>0.05$)。但脐门连接处平滑肌的相对含量略高于肝圆韧带其它各段,而弹性纤维和胶原纤维的相对含量却稍低于肝圆韧带其它各段($P>0.05$)。

肝圆韧带各段及脐门连接处的C/E比值(表3)之比为:1:1.11:1.21:1.21。可以看出,肝圆韧带由腱膜下段、游离段向裂隙段及脐门连接处过渡中,其C/E比值逐渐增大,裂隙段与脐门连接处相等,但均大于其它两段($P<0.05$)。

3 讨论

3.1 肝圆韧带再通的可能性

从形态学看,肝圆韧带是胚胎左脐静脉在胎儿出生后闭锁退变而成。保留了血管壁的结构特征,主要由胶原纤维、弹性纤维和平滑肌构成,仍可分为内膜、中膜和外膜三层。特别是内膜与中膜之间有一明显的富含平滑肌、弹性纤维及胶原纤维的肌弹性带。肝圆韧带各段均存在大小、形态不一的残腔,腔面覆盖有单层扁平内皮细胞,残腔与门静脉潜在性相通。文献报道,肝硬化门脉高压患者的肝圆韧带可能出现病理性再通,其再通率为9%～26%[6,7]。因此肝圆韧带可以人工再通,使残腔扩张,再次成为一条与门脉循环相交通的通路,可供临床诊治疾病之用。肝圆韧带也是较好的生物自体血管代用品或修复机体管道缺损的移植物,蔡景修等[8]经临床实践证明带血管蒂肝圆韧带瓣是较理想的修复胆道缺损的移植物。

3.2 肝圆韧带的断面结构与力学特性

施加外力将肝圆韧带再通时,需了解它的刚度与可扩张性等力学特性,而这些特性又与该韧带的结构成份密切相关。Fischer[9]认为胶原纤维与弹性纤维含量之比(C/E比值)可作为描述血管刚度的经验指数,C/E比值高则血管刚度大,可扩张性小,反之亦然。本文的观测结果表明,虽然肝圆韧带由腱膜下段向游离段及裂隙段过渡中,外径逐渐变粗,管壁厚度及残腔管径逐渐增大,而其管壁的结构成份却以胶原纤维为主,弹性纤维含量由腱膜下段、游离段向裂隙段、脐门连接处逐渐减少,C/E比值逐渐增大(裂隙段与脐门连接处C/E比值相等)。说明尽管肝圆韧带从脐至肝其外径、管壁厚度、残腔管径均逐渐增大,但其刚度亦逐渐增大,可扩张性却逐渐减少。因此在行肝圆韧带力学再通时不宜过度扩张。肝圆韧带的内膜与中膜均较致密,富含胶原纤维,内膜有由平滑肌及弹性纤维为主的肌弹性带,外膜仅由疏松结缔组织构成,因此可将肝圆韧带的内膜及中膜视为力学特性中占主要地位的一整体力学壁,对管内压起关键作用。此外大部分脐门连接处较为狭窄,有的存在纤维性膈膜或瓣膜样结构。因此进行肝圆韧带再通以建立人工通道或将之作为生物自体血管或管道代用品时,不仅要考虑其解剖学特征,还应考虑由组织结构所确定的刚度、弹性和可抗张性等力学特性等,这些都是临床应用不可缺少的形态学资料。

参考文献

1 Braastad FW, Condon RE, Gyorkey F. The umbilical vein, surgical anatomy in the normal adult. Arch Surg, 1967, 95: 948～955

2 Martin BF, Tudor RG. The umbilical and paraumbilical veins of man. J Anat, 1980, 130(2): 305～322

3 Silva YJ. In vivo use of human umbilical vessels and the ductus venosus arantii. Surg Gyn Obst, 1979, 148: 595～610

4 Watts JM, Douglus MC. Clinical applications and complication of umbilical vein cannulation. Br J Surg, 1971, 58: 61～66

5 Staffan E, Angelin BO. Cannulation of the umbilical vein in adult man. Acta Chir Scand, 1980, 500: (suppl)75～78

6 Aagaard J, Jensen LI, Sorensen TI, et al. Recanalised umbilical vein in portal hypertension. AJR, 1982, 139: 1107～1109

7 Burchell AR, Panke WF, Moreno AH, et al. The patent umbilical vein in portal hypertension. Surg Gyn Obst, 1970, 130: 77～86

8 蔡景修,王敖川,周永碧,等. 带蒂脐静脉瓣修复胆管缺损的临床研究及应用. 实用外科杂志, 1990, 10(12): 663～664

9 Fischer GM, Llaurado JG. Collagen and elastin content in canine arteries selected from functionally different vascular beds. Circul Res, 1966, 19: 394～399

(收稿:1993-09-30;修回:1994-05-27)

?1994-2016 China Academic Journal Electronic Publishing House. All rights reserved. http://www.cnki.net

Analysis of the sectional anatomy and micro-structural components of the hepatic teres ligament※

Li Minghua, Yin Dajun, Mi Jianhong, Song Lin, Yao Yuan (Department of Anatomy, Third Military Medical College, Chongqing, 630038)

Abstract The morphology of the transverse sections of the hepatic ligament teres (HLT) was observed under optical microscopy and its mechaniscal parameters determined with an MSA－1 image analytic system in 24 cases. It was found that HLT in adults was a potential open structure with a residual lumen. The wall of the residual lumen was covered with a single layer of endothelial cells. The HLT could be recanalized with mechaniscal means to create a route for diagnostic or therapeutic purpose. The structural characteristics of a blood vessel were preserved in the wall of HLT, which could be distinguished into tunica intima, tunica media and tunica advertita. The external diameter, the thickness of the wall and the diameter of the residual lumen of HLT were gradually increased from its subaponeurotic portion up to the free portion and the fissure portion. The wall of every portion of HLT was composed mainly of collagen fibers and of less amount of elastic fibers and smooth muscle. In the subaponeurotic, free and fissure portions of HLT and in the umbilico－portal junction, the ratio of elastic fibers and collagen fibers was 1∶1.11 and 1.21∶1.21 respectively. The findings indicate that from the aponeurotic portion to the umbilico－portal junction, the relative stiffness of HLT was gradually increased and the extensibility decreased.

Key words liver ligaments; sectional morphology; structural component; mechanica; characteristics

※ The Project Supported by the National Natural Science Foundation of China, No. 90083

屈肌腱移植的实验形态学研究·

论文摘要

An experimental morphologic research on flexor digital tendon

张正治 刘正津 （第三军医大学基础部解剖学教研室）630038

本项研究通过不同肌腱移植的动物实验、滑液对无滑膜肌腱作用的在体培养实验、无滑膜肌腱与滑膜细胞体外联合培养以及体外培养的成人滑膜细胞经免疫组织化、激光共聚焦扫描和ACAS三维图像重建研究该细胞中Vimentin中间丝蛋白的形态分布，综合研究了不同供体肌腱移植愈合的形态变化、功能恢复效果及粘连的产生和防止等有关问题，主要研究结果如下：

(1)用4种不同肌腱移植材料进行鞘内肌腱移植，结果表明：用自体有滑膜肌腱作为移植体，其粘连轻，功能恢复最好。其次是冻干保存的异体有滑膜肌腱，再次为异体有滑膜肌腱；而临床上常用的自体无滑膜肌腱移植的效果最差。

(2)无滑膜肌腱经膝关节腔内在体组织培养，肌腱的表面有光滑的具有滑膜组织形态特征的包囊被覆，表明无滑膜肌腱在滑液环境中可能向有滑膜肌腱转化。

(3)将体外培养的滑膜细胞与无滑膜肌腱一起进行体外联合培养，滑膜细胞能覆盖无滑膜肌腱。实验证实了无滑膜肌腱滑膜化的可能性。

(4)体外培养的滑膜细胞和在体滑膜组织的滑膜组织中，观察了滑膜细胞内Vimentin的形态及分布，Vimentin在细胞的生长分化过程及环境变化时，都显现出相应的改变。认为Vimentin的表达，可能作为细胞分化潜能的一个指标。

关键词 屈指肌腱；腱/移植；滑膜细胞；组织培养；波形蛋白

中图法分类号 R687.2；R322.74

· 国家自然科学基金资助项目，No. 39070825

?1994-2016 China Academic Journal Electronic Publishing House. All rights reserved. http://www.cnki.net