高等医药院校精品教材

病理学实习教程

（双语版）

李娜萍　主编

Practice Guidelines For Pathology

华中科技大学出版社
http://www.hustp.com

高等医药院校精品教材

病理学实习教程

（双语版）

Practice Guidelines For Pathology

主　编　　李娜萍

华中科技大学出版社
中国·武汉

图书在版编目(CIP)数据

病理学实习教程(双语版)/李娜萍　主编. —武汉:华中科技大学出版社,2009 年 7 月
ISBN 978-7-5609-5244-4

Ⅰ. 病…　Ⅱ. 李…　Ⅲ. 病理学-实习-双语教学-教材　Ⅳ. R36-45

中国版本图书馆 CIP 数据核字(2009)第 049509 号

病理学实习教程(双语版)　　李娜萍　主编

策划编辑:胡章成
责任编辑:荣　静　　封面设计:潘　群
责任校对:周　娟　　责任监印:周治超

出版发行:华中科技大学出版社(中国·武汉)
武昌喻家山　邮编:430074　电话:(027)87557437

录　排:华中科技大学惠友文印中心
印　刷:湖北新华印务有限公司

开本:787mm×1092mm　1/16　　印张:8　　字数:200 000
版次:2009 年 7 月第 1 版　　印次:2009 年 7 月第 1 次印刷　　定价:28.80 元
ISBN 978-7-5609-5244-4/R·124

病理学实习教程(双语版)
编委会

前　言

病理学是联系基础医学和临床医学的桥梁课程，是学好临床各科的必要基础。病理学研究疾病发生的原因及引起患者临床各种症状和体征的机制。病理学通过肉眼和显微镜下的形态学研究方法对疾病进行诊断，从而指导对疾病的临床治疗。通过病理学实习，逐步学会正确认识各种疾病的基本病变，并以此为基础对所见病变进行综合分析，揭示它们的内在联系，分析其因果关系，从而对疾病获得比较完整的认识。

Pathology is an important course that bridges basic science and clinical practice, and, it is the foundation for various clinical courses. Pathology involves the investigation of the etiology of disease as well as the pathogenesis that results in the clinical signs and symptoms of the patient. Pathology identifies morphologic changes in gross or microscopic appearance of cells and tissues. You can understand basic morphologic changes of various diseases through pathologic practice. On the basis of this, you can analyse the various pathologic changes and find out their internal relationship. You should analyze the causality that consists in various pathologic changes and attain comparative integrated cognition thereout.

目　录

实习 1　细胞、组织的适应和损伤
Practice 1　Cell adaptation and cell injury

一、目的要求(aims)

(1) 掌握萎缩、肥大、增生、化生的概念，熟悉萎缩、肥大、化生的形态特征。

Grasp the concept of atrophy, hypertrophy, hyperplasia and metaplasia. Be familiar with the morphology of atrophy, hypertrophy and metaplasia.

(2) 掌握常见变性的概念、好发部位、形态特征及转归。

Grasp the concept of degeneration and its common sites, morphologic characteristics, and outcomes.

(3) 掌握细胞死亡的表现形式和基本形态学变化；掌握细胞坏死的类型、形态特征及转归。

Grasp the basic morphologic changes of cell death. Master the types, morphologic characteristics and outcomes of necrosis.

(4) 熟悉各种变性、坏死的相互关系。

Be familiar with the relationship between various degeneration and necrosis.

二、内容提要(summary)

在整个生命过程中，机体细胞不断地接受内外环境变化的刺激，并通过自身调节机制作出形态、代谢和功能的反应性调整和适应。这种刺激达到一定程度和(或) 持续一段时间，细胞和组织就会出现形态、功能和代谢的变化。

细胞和组织在各种有害因子的持续作用下，通过调整其自身形态、功能和代谢得以存活的过程称为适应。适应的形态学表现形式有肥大、增生、萎缩和化生。

机体组织细胞的耐受和适应能力是有限度的，当刺激强度和持续时间超过了细胞的适应能力和调节能力，则组织细胞出现损伤。轻度的损伤在刺激消失后可恢复正常，称为变性。常见的变性包括细胞水肿、脂肪变性、玻璃样变、病理性色素沉着等。严重的细胞损伤是不可逆的，可引起细胞的死亡。细胞的死亡形式有细胞坏死与凋亡两大类，各自具有不同的发生机制、生化特点、形态特征及结局。

细胞核改变是细胞死亡的形态学标志，包括核浓缩、核碎裂、核溶解。活体内局部细胞的酶解性死亡称为坏死，包括凝固性坏死、液化性坏死、坏疽等形式。坏死的结局有溶解吸收、分离排出、机化与包裹钙化四种形式。

In the process of life, the body cells can respond to various internal and external stimulations by morphologic, metabolic and functional adaptation. The cells and tissues will appear abnormal in morphology, metabolism and function if stimulus is severe and persists.

Adaptation means the process that the cells and tissues get survived by modulating morphology, metabolism and function under the various injurious agents, which consists of hypertrophy, hyperplasia, atrophy and metaplasia.

The cells and tissues become injured if the intensity and duration of the stimulus exceed the limits of adaptive response. Mild injury is reversible, called degeneration. The common forms include cellular swelling, fatty change, hyaline degeneration and pathologic pigmentation. Severe cell injury is irreversible and leads to cell death. There are two principal patterns of cell death, necrosis and apoptosis, which differ in their mechanisms, biochemical character-

istics, morphology and outcomes.

The nuclear alterations are morphologic hallmarks of cell death, including pyknosis, karyorrhexis and karyolysis. The enzymatic death of local cells in living tissue is called necrosis, which includes coagulative necrosis, liquefactive necrosis and gangrene, etc. The termination of necrosis includes resolution, separation and discharging, organization, encapsulation and calcification.

三、大体标本观察(gross specimen observation)

1. 心脏代偿性肥大(compensatory hypertrophy of the heart)

心脏体积增大,重量增加,以左心室肥大为主。切面暴露左心室腔,左心室壁肥厚(正常为0.8～1.2 cm),室间隔增宽,肉柱及乳头肌增粗,左心室腔相对缩小。(图 1-1)

The heart is enlarged in size and increased in weight, especially the left ventricle. On cut surface, the left ventricular wall is thickened(the normal thickness is 0.8—1.2 cm) with widened interventricular septum and thickened trabeculae and papillary muscles, but the left ventricular chamber is decreased relatively. (Fig. 1-1)

2. 心脏褐色萎缩(brown atrophy of the heart)

心脏体积显著缩小、颜色加深,心被膜表面见冠状动脉呈迂曲状。切面呈灰褐色,心外膜变厚,心室壁变薄。(图 1-2)

The heart is significantly decreased in size and becomes brown. The coronary arteries on the epicardium are tortuous. On section, the epicardium is thickened with the thinning of ventricular wall. (Fig. 1-2)

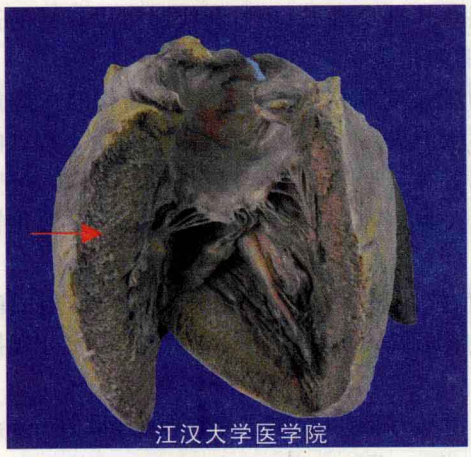

图 1-1　心脏代偿性肥大

→ 肥厚的心肌

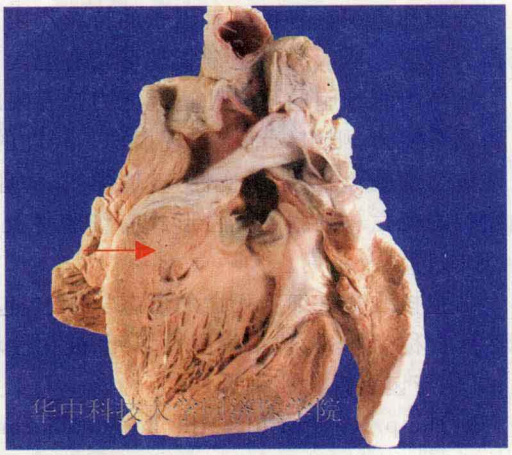

图 1-2　心脏褐色萎缩

→ 萎缩的心脏颜色加深呈褐色

3. 脑压迫性萎缩(compression atrophy of the brain)

矢状切面的脑组织,可见脑沟变浅,脑回变窄,脑室扩大,脑皮质受压变薄(脑沟深达大脑皮质的1/2以上)。(图 1-3)

On sagittal section of the brain, the sulci become shallowed and widened, the gyri become narrowed, and the ventricles are dilated. Because of the compression, the cerebral cortex becomes thin (the depth of the sulci is greater than the half depth of the cerebral cortex). (Fig. 1-3)

4. 肾压迫性萎缩(compression atrophy of the kidney)

肾体积增大，重量减轻，切面肾盂、肾盏高度扩张，形成多个大小不等的囊腔，肾实质明显变薄(正常厚度为 2～2.5 cm)，肾皮质与髓质分界不清，肾锥体消失。(图 1-4)

The kidney is enlarged in size and decreased in weight. The renal pelvis and calices are highly dilated, which form several cysts varied in size. The renal parenchyma becomes thinned (the normal thickness is 2－2.5 cm). There is no clear demarcation between the cortex and the medulla, and the renal pyramid is disappeared. (Fig. 1-4)

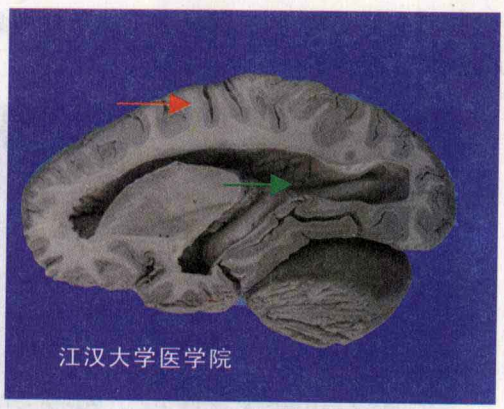

图 1-3　脑萎缩

→ 萎缩的大脑皮质；→ 扩大的脑室

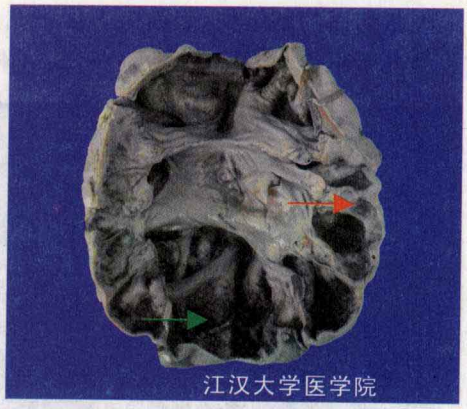

图 1-4　肾压迫性萎缩

→ 萎缩的肾皮质；→ 扩张的肾盂及肾盏

5. 肝脂肪变性(fatty degeneration of the liver)

肝脏表面光滑，淡黄色，质软，切面亦呈淡黄色，触之有油腻感。(图 1-5)

The liver is slightly enlarged and has a bright yellow appearance with smooth surface. It becomes soft and greasy. (Fig. 1-5)

6. 脾被膜玻璃样变(hyaline degeneration of the splenic capsule)

病变的脾肿大，重量增加，质地变硬，脾被膜表面可见局限性增厚，灰白色，均质，半透明状，质地致密而有韧性，似在局部涂上一层糖衣，又称糖衣脾。(图 1-6)

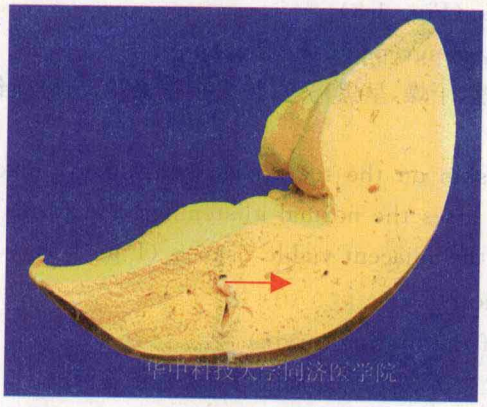

图 1-5　肝脂肪变性

→ 肝脏颜色变淡黄

图 1-6　脾被膜玻璃样变

→ 脾表面被覆的一层“糖衣”

The spleen is enlarged in size, increased in weight and hardened in texture. The capsule of the spleen is localizedly thickened, gray white and semitransparent. It seems as a layer of sugar-

coat spreading on the spleen, so called sugar icing of the spleen. (Fig. 1-6)

7. 肝液化性坏死(liquefactive necrosis of the liver)

病变肝脏体积增大,切面见 4 cm×3 cm 的囊腔,囊内壁不光滑,其上附着灰白色脓性分泌物。(图 1-7)

The liver is enlarged in size. The cut surface shows a cyst about 4 cm×3 cm. The inner wall of the cyst is not smooth with some gray-white purulent exudates. (Fig. 1-7)

8. 脑液化性坏死(liquefactive necrosis of the brain)

矢状切面的脑组织,表面血管扩张充血,脑沟变浅,脑回变平变宽,脑底部见多个圆形规则囊腔。囊内壁不光滑,囊壁厚薄不一,其上附着黄白色坏死物。(图 1-8)

图 1-7 肝液化性坏死

→ 肝的液化性坏死灶,坏死组织液化;
→ 可见纤维结缔组织形成的囊壁

图 1-8 脑液化性坏死

→ 脑的液化性坏死灶,坏死组织液化;
→ 可见纤维结缔组织形成的囊壁

图 1-9 足干性坏疽

→ 坏死组织与正常组织之间分界清楚

On sagittal section of the brain, the blood vessels on the surface are dilated and hyperemic, the sulci become shallowed, and the gyri become flattened and widened. The base of the brain shows many spherical and regular cysts. The inner wall of the cysts is not smooth and varied in thickness with some yellowish white necrotic materials. (Fig. 1-8)

9. 足干性坏疽(dry gangrene of the foot)

足趾大部分皮肤皱缩、干燥,呈黑褐色,失去正常光泽,与健康组织分界清楚。(图 1-9)

Most part of the skin on the toe appears shrunken, black brown and dry, which loses the normal glistening, and forms a well demarcation with the adjacent viable tissues. (Fig. 1-9)

四、组织切片观察(slice specimen observation)

1. 子宫颈鳞状上皮化生(squamous metaplasia of the uterine cervix)

(1) 低倍镜观察:宫颈腺单层柱状上皮被复层鳞状上皮所取代,腺体周围可见炎症细胞浸润。

At low magnification, the simple columnar epithelia of the cervical glands are replaced by the stratified squamous epithelia. The inflammatory infiltrations around the glands are also seen.

(2) 高倍镜观察:化生的鳞状上皮核不规则,细胞极性消失。(图 1-10)

At high magnification, the metaplastic squamous epithelium shows irregular nuclei and loss of cell polarity. (Fig. 1-10)

2. 心肌细胞褐色萎缩(brown atrophy of the heart)

(1) 低倍镜观察:心肌纤维较正常变细。

At low magnification, the myocardial fibers become thinner than the normal.

(2) 高倍镜观察:肌原纤维及横纹尚清楚,心肌纤维核两端可见折光性较强的棕褐色的脂褐素颗粒。(图 1-11)

At high magnification, the myofibrils and cross-striations are still seen. There are some yellow-brown lipofuscin granules in the perinuclear location. (Fig. 1-11)

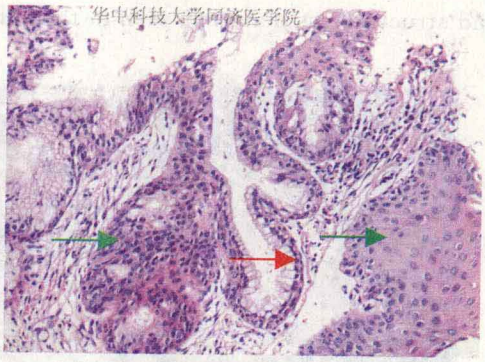

图 1-10　子宫颈鳞状上皮化生

→ 子宫颈柱状上皮;→ 鳞状上皮化生

图 1-11　心肌细胞褐色萎缩

→ 位于心肌细胞核旁的脂褐素

3. 肝细胞脂肪变性(fatty degeneration of the liver)

(1) 低倍镜观察:肝小叶结构尚在,但肝索拥挤、紊乱,肝窦扭曲、狭窄甚至消失。

At low magnification, the hepatic lobules still exist, but the hepatic cords are crowded and disordered, and the hepatic sinus is distorted and narrow, even disappeared.

(2) 高倍镜观察:大部分肝细胞体积增大,肝细胞胞质内见大小不等的圆形空泡,部分空泡融合,形成较大的空泡,将细胞核挤至细胞的一侧,但细胞核的结构仍属正常。(图 1-12)

At high magnification, most of the hepatocytes are enlarged. There are many round vacuoles in the cytoplasm, varying in size. Some may coalesce to form larger vacuoles filling the cell and pushing the nucleus aside, but the nuclear structure remains normal. (Fig. 1-12)

4. 肾凝固性坏死(coagulative necrosis of the kidney)

(1) 低倍镜观察:肾组织内红染的区域为坏死区,坏死区内多数细胞核消失,但肾小球及肾小管轮廓存在,坏死区周围可见不规则的充血、出血带。

At low magnification, the red stained area in the renal tissue is the necrotic zone. Most of nuclei in this area are disappeared, but a faint outline of glomeruli and tubules can be recognized. There is a rim of hyperemia and hemorrhage around the necrotic tissue.

(2) 高倍镜观察:坏死区可见肾小球、肾小管

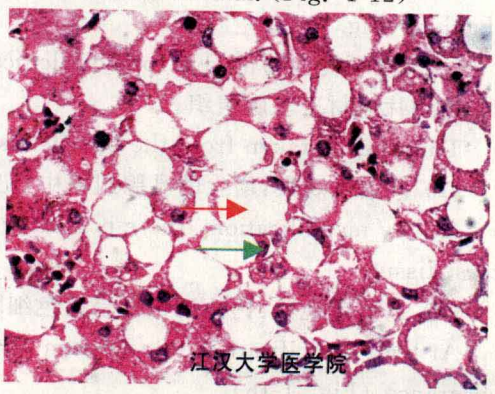

图 1-12　肝细胞脂肪变性

→ 肝细胞内脂肪空泡;→ 肝细胞核

及间质细胞的核浓缩、碎裂及溶解。(图 1-13)

At high magnification, in the necrotic area, the nuclei of glomeruli, tubules and the interstitial cells show pyknosis, karyorrhexis, and karyolysis. (Fig. 1-13)

5. 脾细动脉玻璃样变(hyaline degeneration of the splenic arterioles)

(1) 低倍镜观察:脾白髓和红髓结构清晰。

At low magnification, the structure of the splenic white and red pulp is clear.

(2) 高倍镜观察:脾小体中央动脉管腔变小,壁增厚,内膜下可见均质、红染、无结构物质。(图 1-14)

At high magnification, the splenic central arterioles show lumen narrowing and wall thickening. There are some homogenous, eosinophilic and structureless materials seen in the subendothelium. (Fig. 1-14)

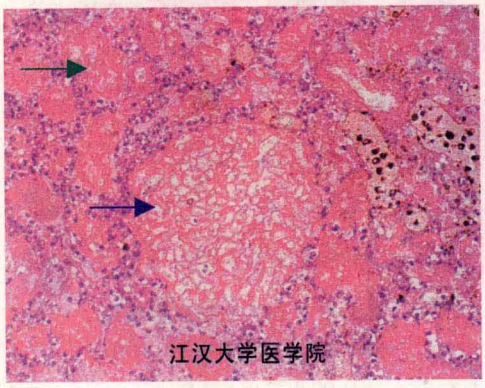

图 1-13 肾凝固性坏死

→ 坏死的肾小球;→ 坏死的肾小管

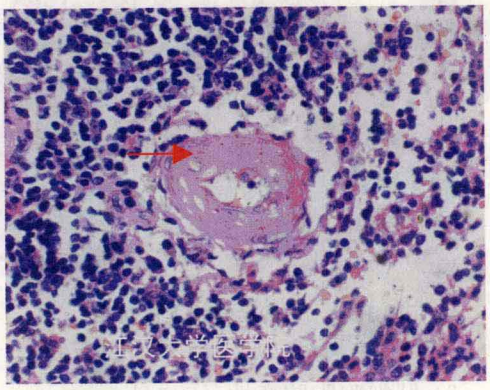

图 1-14 脾细动脉玻璃样变

→ 脾细动脉管壁出现均质、红染、无结构的物质

6. 脑液化性坏死(liquefactive necrosis of the brain)

(1) 低倍镜观察:脑组织中可见散在分布的淡染区,略呈网状结构,即为坏死灶。

At low magnification, the brain tissue shows scattered, light-stained necrotic foci, with somewhat reticulate structure.

(2) 高倍镜观察:坏死灶内细胞溶解液化,呈疏松空网状。(图 1-15)

At high magnification, the necrotic focus is loosened and reticulate with cell lysis and liquefaction. (Fig. 1-15)

7. 营养不良性钙化(dystrophic calcification)

该切片取材于乳腺组织。

This slice is taken from the breast tissue.

(1) 低倍镜观察:增生的乳腺组织中可见蓝色颗粒状钙盐沉积,为继发的营养不良性钙化。

At low magnification, there is blue granular calcium salts accumulated in the proliferative breast tissue.

(2) 高倍镜观察:钙盐沉积处呈蓝色细颗粒或片块状。(图 1-16)

At high magnification, the calcium salts have a basophilic, amorphous granular or clumped appearance. (Fig. 1-16)

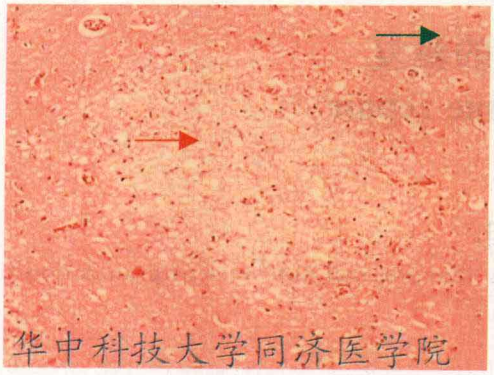

图 1-15　脑液化性坏死

→液化坏死区；→正常脑组织区

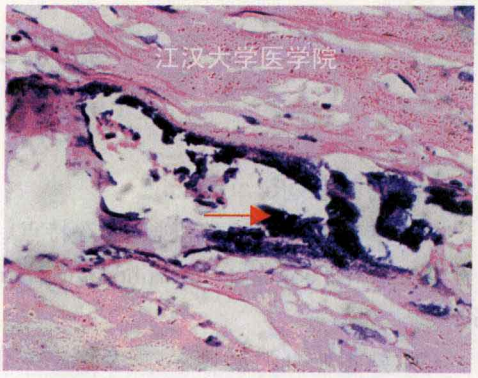

图 1-16　营养不良性钙化

→蓝色细颗粒状的钙盐沉积

思考题(questions)

(1) 萎缩、肥大、增生、化生的病理形态学各有何特点？

What are the morphologic features of atrophy, hypertrophy, hyperplasia and metaplasia?

(2) 常见的变性有哪些？各有何形态特点？

What are the common forms of degeneration? What are their morphologic characteristics?

(3) 如何从肉眼和镜下判断坏死？

How to determine necrosis by naked eye and microscopy?

(4) 坏死的类型有哪些？举例说明它们各有何形态特点？

What are the common types of necrosis? Use examples to explain their morphologic features.

（江汉大学医学院　镇鸿燕　舒细记　刘丽江）

实习 2　损伤的修复
Practice 2　Tissue repair

一、目的要求(aims)

(1) 掌握肉芽组织的概念、形态特点、功能及转归。

Grasp the concept, morphologic characteristics, function and outcomes of granulation tissue.

(2) 熟悉修复的形式、过程及形态变化。

Be familiar with the patterns, process and morphologic changes of repair.

(3) 熟悉创伤愈合的类型及特征。

Be familiar with the types and morphologic characteristics of wound healing.

二、内容提要(summary)

机体对缺损部分进行修补恢复的过程称为修复。修复可通过同种类型的实质细胞再生,或通过结缔组织的替代来完成。再生的过程包括细胞迁移、增生、分化及基质合成等。组织的再生包括上皮组织的再生、纤维组织的再生、血管的再生等。纤维性修复由肉芽组织增生完成,肉芽组织由新生毛细血管、成纤维细胞及各种炎症细胞构成。肉芽组织在创伤愈合中有三个重要作用:①抗感染保护创面;②填补创口及其他组织缺损;③机化或包裹坏死组织、血栓、血凝块、炎性渗出及其异物。瘢痕组织是肉芽组织改建成熟的结局。皮肤创伤愈合根据损伤程度及有无感染可以分为一期愈合和二期愈合。骨折愈合的基本过程包括血肿形成、纤维性骨痂、骨性骨痂和骨痂的改建。

Repair means the process that the body replaces the lost structures. It can be achieved by regeneration of parenchymal cells of the same type, or replacement of connective tissue. The regeneration includes cell migration, proliferation, and differentiation as well as matrix synthesis. The tissue regeneration consists of regenerations of epithelium, fibrous tissue, and blood vessels. The fibrous repair is accomplished by proliferation of granulation tissue that is composed of newly formed capillaries, fibroblasts and various inflammatory cells. The granulation tissue plays three important roles in wound healing: (1)anti－infection to protect the wound surface, (2)filling up the tissue defect, (3)organization and encapsulation of the necrotic tissue, thrombi, blood clots, inflammatory exudates and foreign bodies. The scar results from the maturation and remodeling of granulation tissue. Based on the severity and infection, cutaneous wound healing is divided into healing by first intention and healing by second intention. The basic healing process of bone fracture includes hematoma formation, fibrous callus, bony callus and callus remodeling.

三、大体标本观察(gross specimen observation)

1. 骨痂(callus)

骨折局部因新骨形成的骨痂而膨大,切面新骨形成处致密,尚未形成骨髓腔。(图 2-1)

The segment of bone fracture becomes enlarged due to the callus formation. On section, the new bone is condensed without the medullary cavity formation. (Fig. 2-1)

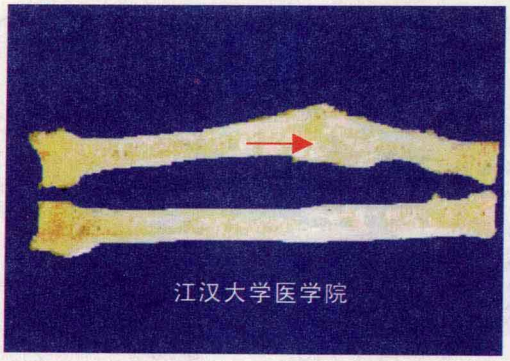

图 2-1　骨痂

→ 新形成的骨痂

四、组织切片观察(slice specimen observation)

1. 肉芽组织(granulation tissue)

组织取自胃溃疡底部或皮肤溃疡的肉芽组织。

The slice is taken from the granulation tissue of gastric or cutaneous ulcers.

(1) 低倍镜下:胃或皮肤表面的组织坏死形成溃疡,其下方可见富含小血管的纤维结缔组织(肉芽组织)增生,小血管沿着创面垂直生长,并以小动脉为轴心,在周围形成袢状毛细血管网。(图 2-2)

At low magnification, the surface of stomach or skin undergoes necrosis and forms ulcer. The underneath fibrous tissue rich in small blood vessels is proliferative. The small blood vessels are vertical to the wound surface with the small arteries in the center and capillary network at the periphery. (Fig. 2-2)

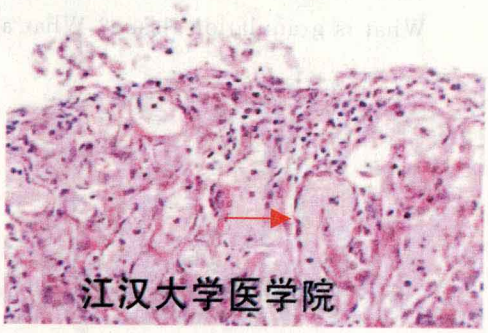

图 2-2　肉芽组织(低倍镜下)

→ 新生毛细血管

(2) 高倍镜下:肉芽组织由新生的毛细血管、成纤维细胞及各种炎症细胞构成。血管内皮细胞肿胀,成纤维细胞呈梭形或星形,胞质丰富,嗜碱性,核卵圆形,染色浅淡,有的可见核仁。炎症细胞包括嗜中性粒细胞、淋巴细胞、巨噬细胞及浆细胞。(图 2-3)

At high magnification, the granulation tissue is composed of newly formed capillaries, fibroblast and a variety of inflammatory cells. The vascular endothelial cells are plump. The fibroblast is fusiform or star-like with abundant basophilic cytoplasm and ovoid, pale-stained nuclei. Sometimes the nucleoli are present. The infiltrated inflammatory cells include neutrophils, lymphocytes, macrophages and plasma cells. (Fig. 2-3)

2. 骨痂(callus)

(1) 低倍镜观察:骨折部位已有大量纤维组织增生,并可见骨组织再生。

At low magnification, there are fibrous tissue proliferation and new bone formation at the fracture site.

(2) 高倍镜观察:再生的骨组织由幼稚的编织骨构成,其内胶原纤维排列紊乱,无一定方向,再生骨周围可见整齐的骨母细胞排列。(图 2-4)

At high magnification, the regenerative bone is composed of immatured woven bone and

the inside collagen arrange disorderly. Orderly arranged osteoblasts are seen surrounding the regenerative bone. (Fig. 2-4)

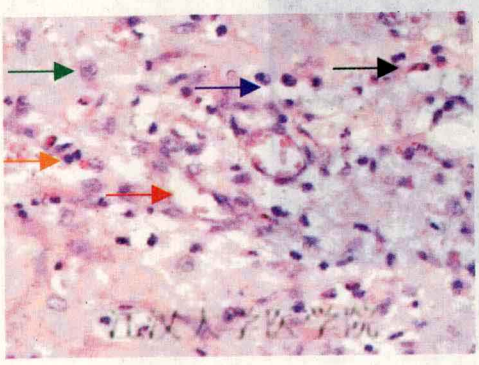

图 2-3 肉芽组织(高倍镜下)

新生毛细血管;成纤维细胞;
浆细胞;嗜中性粒细胞;
嗜酸性粒细胞

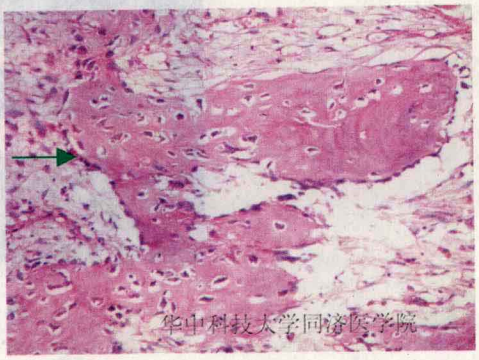

图 2-4 骨痂

再生的骨质,周围可见骨母细胞排列

思考题(questions)

何谓肉芽组织?其组成、功能和结局如何?

What is granulation tissue? What are its components, functions and outcomes?

(江汉大学医学院 镇鸿燕 舒细记 刘丽江)