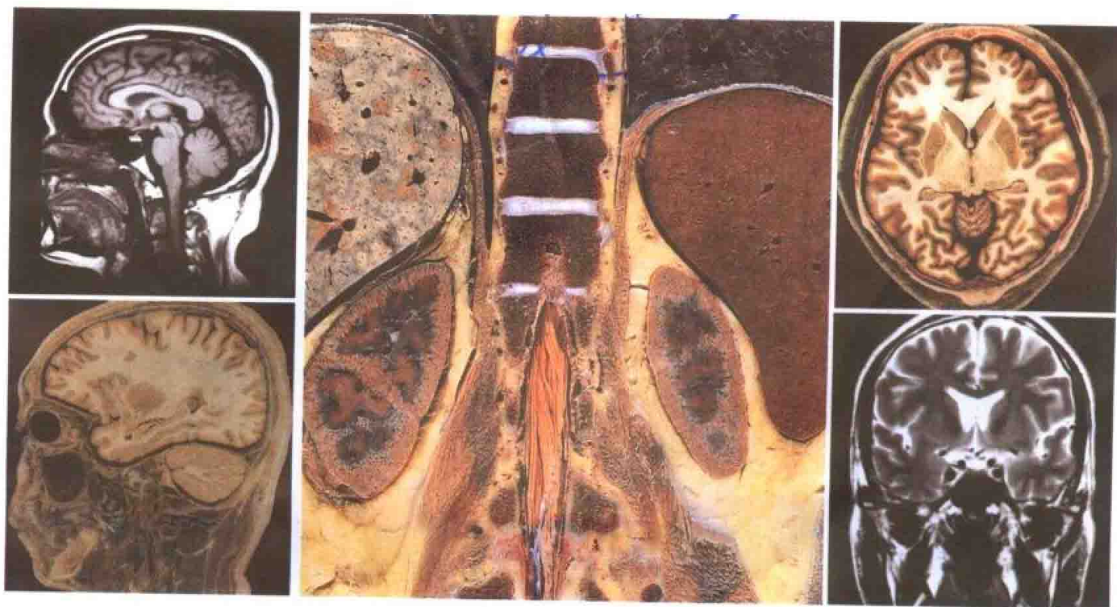


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Atlas Of Human Sectional Anatomy

人体断层 解剖学图谱



主编 刘树伟
Chief Editor

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前 言

人体断层解剖学是用断层方法研究和表达人体正常形态结构和基本功能的科学,是分析和识别现代医学图像的形态学基础。1970年以来,由于超声成像(US)、X线计算机断层成像(CT)、磁共振成像(MRI)、单光子发射计算机断层显像(SPECT)和正电子发射计算机断层显像(PET)等断层影像技术的出现,人体断层解剖学得到了空前发展,其研究范围扩展为解剖断层和影像断层两个方面,前者主要研究人体断层标本,后者主要研究正常人体的US、CT和MRI等断层图像。目前,US、CT和MRI等技术已被广泛应用于疾病的诊断和介入治疗,每一位临床医师均有必要学会正确地阅读和解释CT、MRI图像。因此,人体断层解剖学已成为高等医学院校学生的必修课程,并被卫生部纳入临床医师继续医学教育的内容。

我校自1989年便开设了人体断层解剖学课程,并自1993年始连续举办了10届全国断层解剖学学习班(为国家级继续医学教育项目),所取得的教学成果于1997年获国家级教学成果二等奖。在教学过程中,师生们均感到如能有一本与教材相匹配的断层解剖学图谱在手,必能有利于教师的备课和学生的自学,从而大大提高教学效果。然而,目前尚无这样的图谱出版。为此,我们从多年积累的科研资料中精选图片,编著了这部《人体断层解剖学图谱》,供高等医学院校的教师和学生在学习中使用时,亦可供临床各科医师在分析疾病的US、CT和MRI图像时参考。

图谱是表达断层解剖学的最好形式。一部好的断层解剖图谱,不仅具有持久的艺术魅力,而且还能锻炼读者的观察能力和空间思维能力。为实现编写目的,我们力求做到以下几点:①与教材相匹配,内容的选择以刘树伟主编的高等医学院校教材《断层解剖学》为主要依据;②除脊柱区和四肢外,选用连续断层,以有益于对某一结构的连续追踪观察,建立空间思维;③强调解剖断层与影像断层的融合,每一断层均包括断层标本彩色照片与CT、MRI图像;④标注细致,采用中、英文对照形式,解剖学名词以国家自然科学名词审定委员会公布的《人体解剖学名词》(科学出版社,1991)为准。

全书共有成人断层标本彩色照片120幅、CT和MRI图像270幅。人体断层标本由山东大学医学院解剖学教研室采用冰冻切片技术制作,头部和四肢断层标本的层厚为8mm,躯干部断层标本的层厚为10mm。头部横断层标本的制作以眦耳线为基线,头部矢状断层标本的制作基线平行于正中矢状面,头部冠状断层标本的制作基线垂直于

眦耳线。CT和MRI图像取自活体，由山东大学齐鲁医院放射科和山东省医学影像学研究所制作，CT扫描机为螺旋CT和多层螺旋CT，MRI扫描机的场强为1.5 T。需要指出的是：高波、林祥涛和刘学静医师，不顾X线对组织的损害，提供了自己身体的CT和MRI图像。这种忘我的牺牲精神，令人钦佩。栾铭箴教授和华伯坝教授多年来一直给予悉心指导，山东大学医学院解剖学教研室的老师们给予了许多帮助，在此一并表示衷心感谢。

尽管我们反复校阅，书中一定还有许多不足之处，望不吝赐教。

中国解剖学会断层影像解剖学专业委员会主任委员 刘树伟

Preface

Human sectional anatomy is the science which studies and demonstrates normal structure and basic function of the human body with the sectioning methods. It has become morphological fundament for analyzing and recognizing modern medical imaging. Since 1970, human sectional anatomy has gotten an unprecedented development and expanded its research area to the cadaver section and imaging section with the booming of sectional imaging modalities, such as ultrasound (US), X-ray computed tomography (CT), magnetic resonance imaging (MRI), single photon emission computed tomography (SPECT), and positron emission computed tomography (PET). At present, as US, CT, and MRI have been widely used in the diagnoses and interventional treatment of the diseases, it is urgent that every clinician understand and interpret CT and MRI images competently. Therefore, human sectional anatomy has become a required course for the students of higher medical school and has been put into the contents of continuing medical education under the sponsorship of national health ministry of China.

In 1989, our university began to offer the course of sectional anatomy for medical students. Since 1993, we have sponsored 10 national study classes of sectional anatomy (the national project of continuing medical education). In 1997, we got the second prize of national achievement in teaching for our course of sectional anatomy. During the teaching activity, both the teachers and students feel that an atlas of sectional anatomy matching with textbook is necessary. This atlas would contribute to the preparing the lessons for the teachers and the teaching themselves for the students. Therefore, we carefully chose the pictures accumulated in our research works over ten years and compiled this book-*Atlas of Human Sectional Anatomy*. We hope this atlas will be used in the sectional anatomic teaching by the teachers and students of the higher medical school and provide the reference for the physicians of the hospitals when they are interpreting US, CT, and MRI images of the diseases.

Atlas is the best modality for showing the sectional anatomy. A good atlas of the sectional anatomy can not only endure its art charm, but also train the reader's ability of observation and the ability of three-dimensional thinking. In order to realize the purpose of compiling, we try hard to reach the following: ① matching this atlas with textbook of the sectional anatomy

edited by Liu Shuwei; ② choosing and using the serial sections except the vertebral region and limbs, which is beneficial of tracing some structures on serial sections and helping the students to establish the space thinking; ③ enhancing matching the cadaver sections with imaging sections; ④ giving a detailed legends both in Chinese and English. The anatomic terms are used according to *the Human Anatomic Terms* published in 1991 by the National Examination and Approval Committee on Natural Scientific Terminology.

This atlas comprises 120 color pictures of sectional specimen of adult and 270 CT and MRI images. The sectional specimens of the human body are prepared by the freezing section technique in department of anatomy of College of Medicine, Shandong University. The thickness of sections is 8mm for head and limbs and 10mm for trunk. The plane of reference for horizontal sections of the head is the plane through the canthomeatal line. The plane of reference for sagittal sections of the head is the median plane. The plane of reference for coronal sections of the head is perpendicular to the canthomeatal line. CT and MRI images are scanned by spiral or multislice spiral CT machine and 1.5 Tesla MR scanner in department of radiology of Cheeloo Hospital, Shandong University and Shandong Institute for Medical Imaging respectively.

I would like to express my gratitude to Prof. Luan Mingzhen and Prof. Hua Boxun who have given me a lot of directors for this book. I also want to give my thanks to Dr. Gao Bo, Dr. Lin Xiangtao, and Dr. Liu Xuejing who had their bodies X-rayed for obtaining CT and MRI images.

Chairman of Committee for Sectional
and Imaging Anatomy of Chinese Society
for Anatomical Sciences

Liu Shuwei

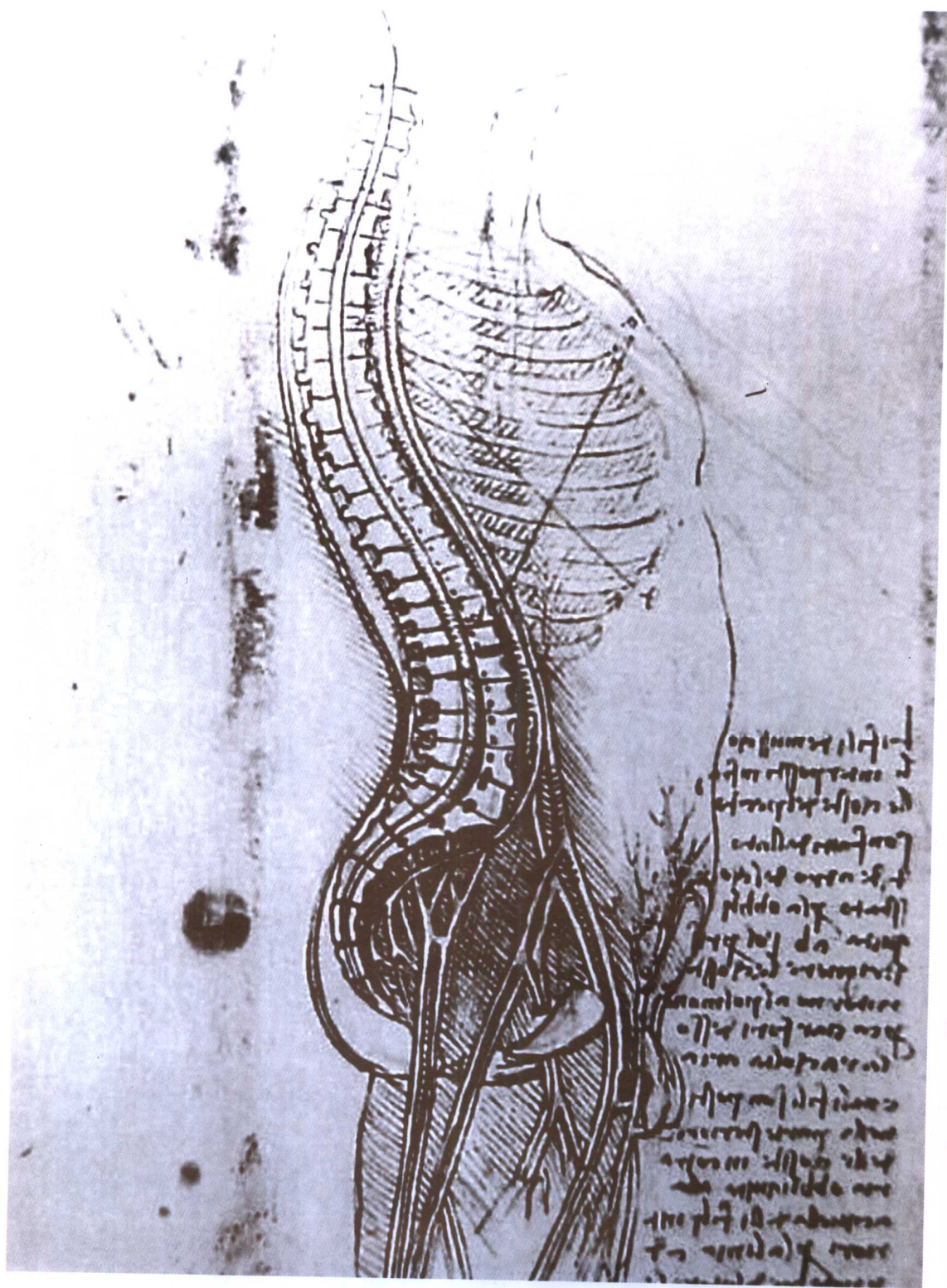
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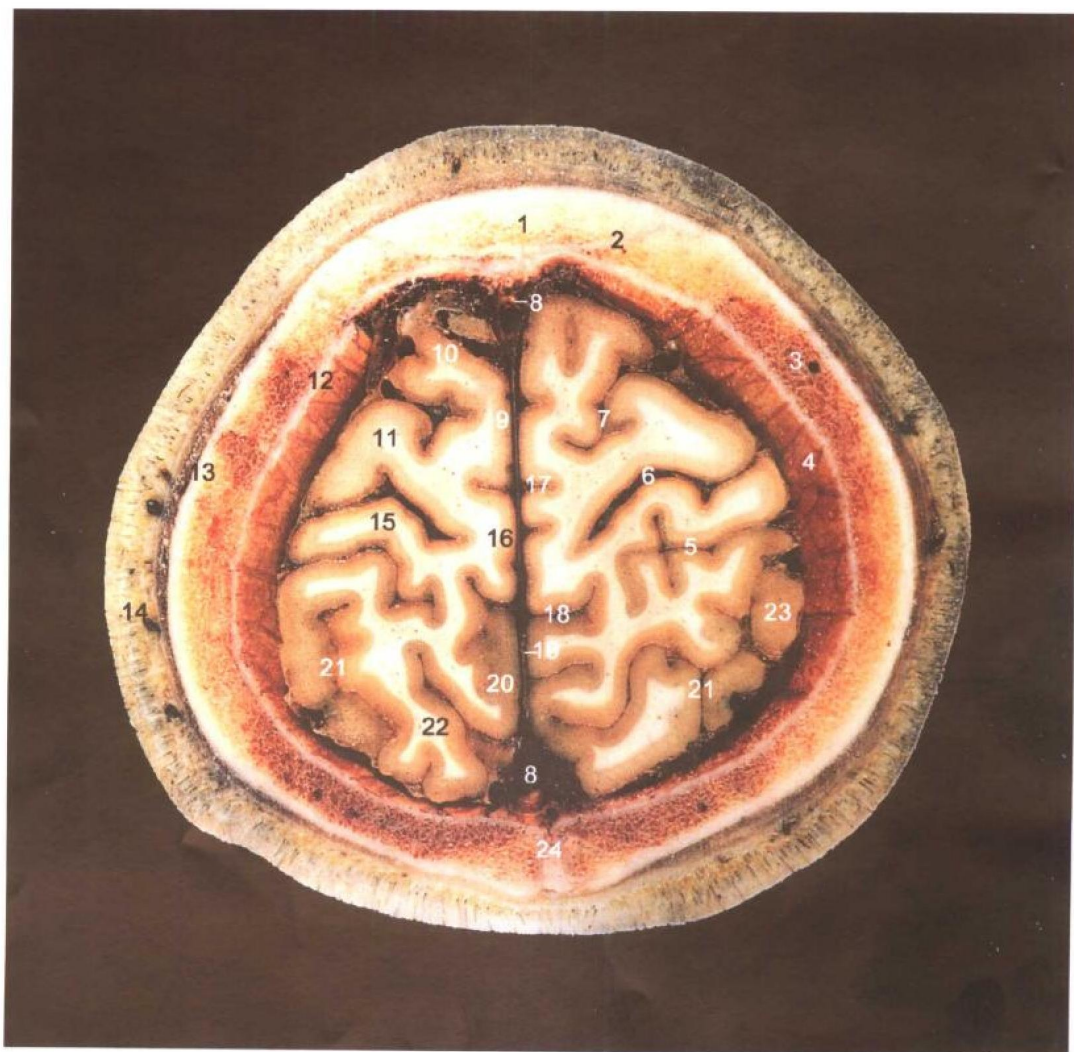
意大利画家达·芬奇于16世纪初绘制的男性躯干部正中矢状断面图。
Median sagittal section of the male trunk pictured by Leonardo da Vinci,
in the early part of the 16th century.

第一章 头部连续横断层

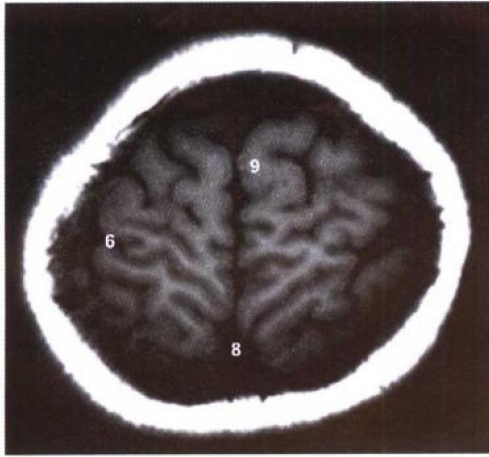
Chapter 1 Serial Transverse Sections of Head

图 1-1 经中央旁小叶上份的横断层

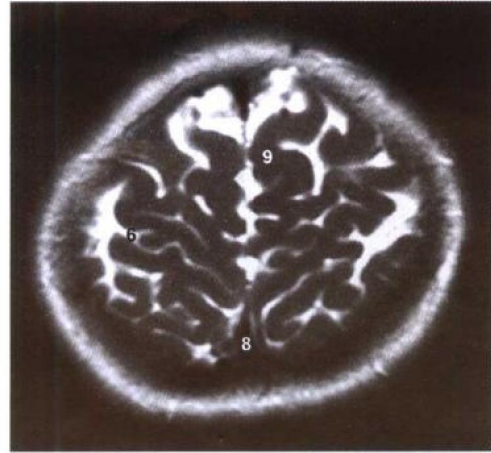
Fig.1-1 Transverse section through upper part of paracentral lobule



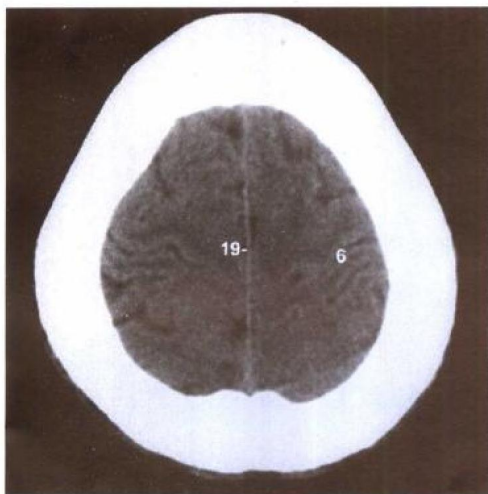
A. 断层标本(sectional specimen)



B. MRI T₁ WI



C. MRI T₂ WI

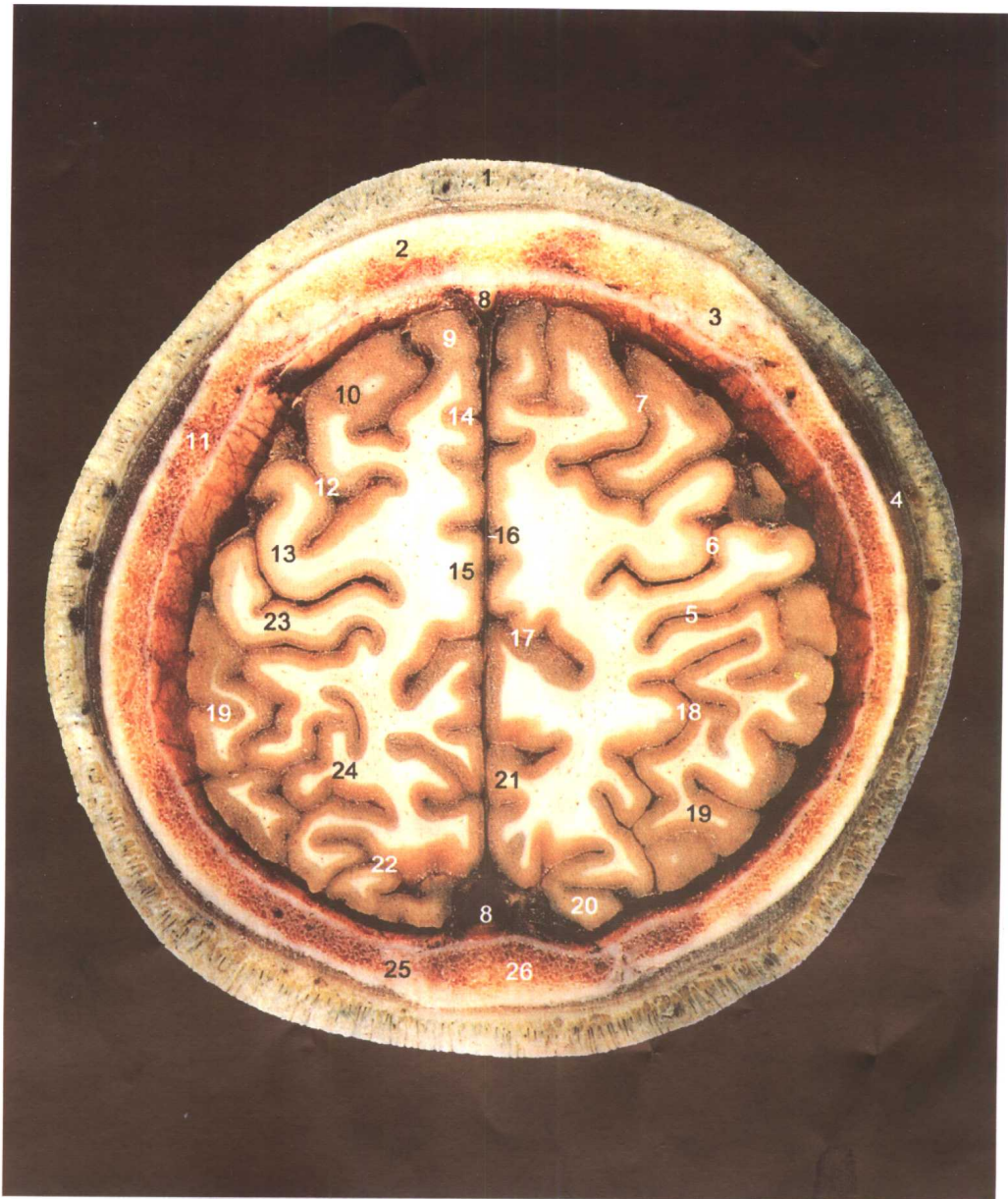


D. CT

1. 额骨 frontal bone
2. 冠状缝 coronal suture
3. 板障 diploë
4. 硬脑膜 cerebral dura mater
5. 中央后沟 postcentral sulcus
6. 中央沟 central sulcus
7. 中央前沟 precentral sulcus
8. 上矢状窦 superior sagittal sinus
9. 额内侧回 medial frontal gyrus
10. 额上回 superior frontal gyrus
11. 中央前回 precentral gyrus
12. 内板 inner plate
13. 外板 outer plate
14. 头皮 scalp
15. 中央后回 postcentral gyrus
16. 中央旁小叶 paracentral lobule
17. 中央旁沟 paracentral sulcus
18. 扣带沟缘支 marginal ramus of cingulate sulcus
19. 大脑镰 cerebral falx
20. 楔前叶 precuneus
21. 顶内沟 intraparietal sulcus
22. 顶上小叶 superior parietal lobule
23. 顶下小叶 inferior parietal lobule
24. 矢状缝 sagittal suture

图 1-2 经中央旁小叶下份的横断层

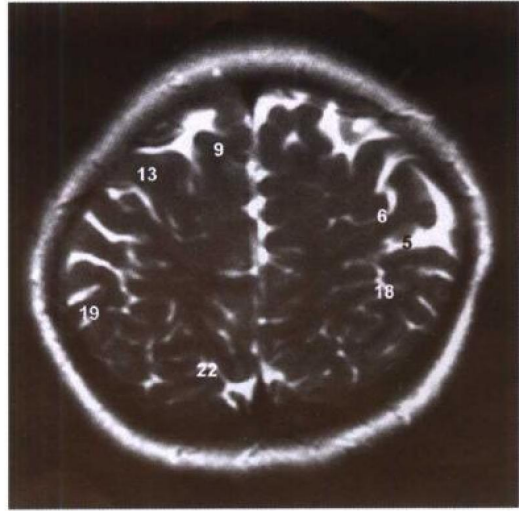
Fig.1-2 Transverse section through lower part of paracentral lobule



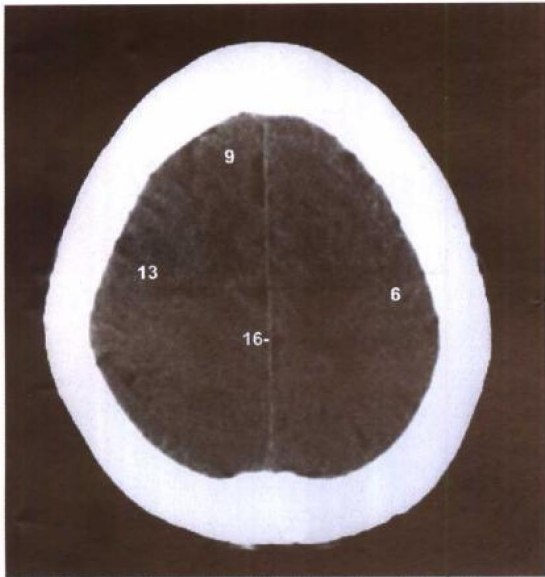
A. 断层标本(sectional specimen)



B. MRI T₁ WI



C. MRI T₂ WI

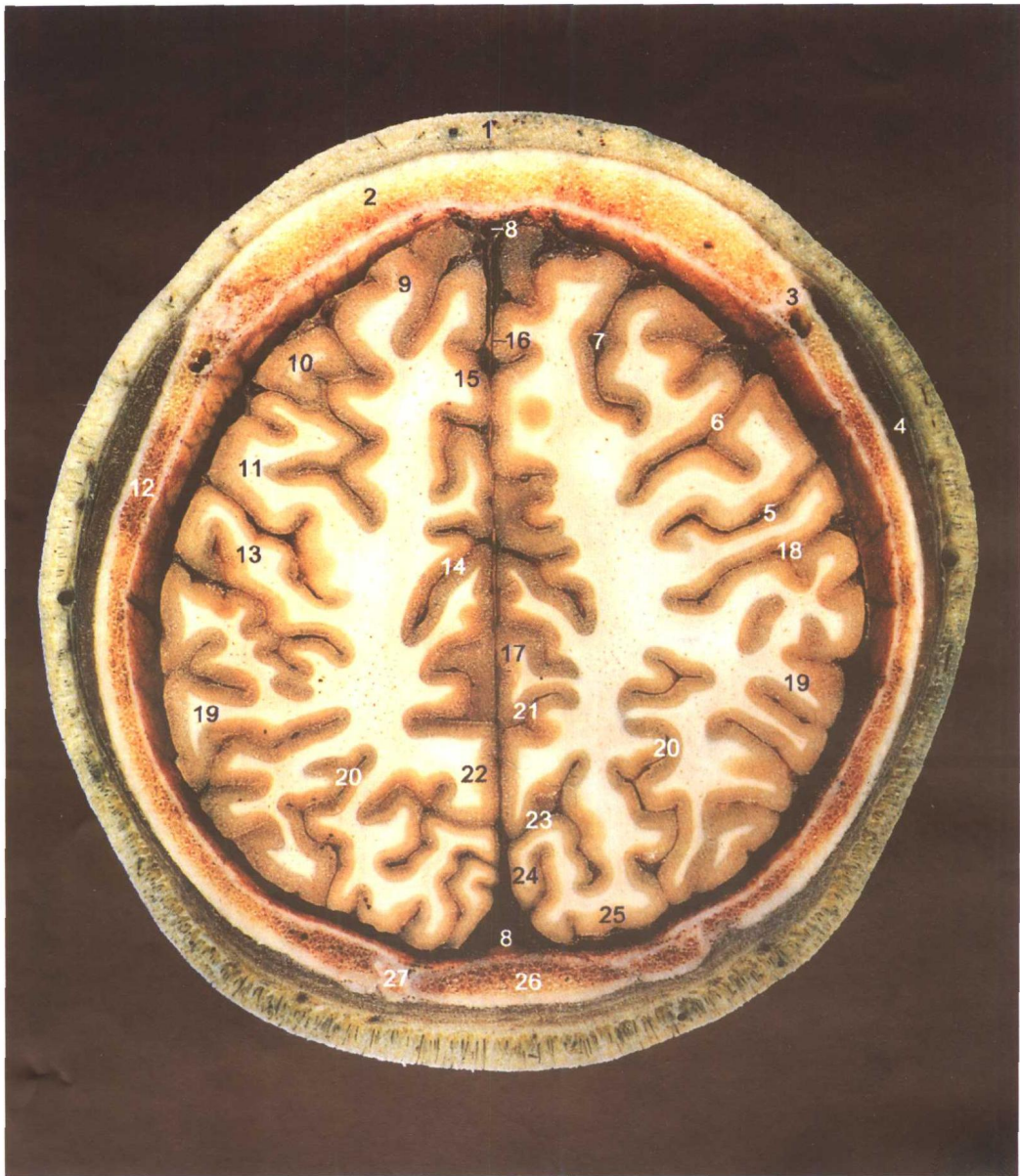


D. CT

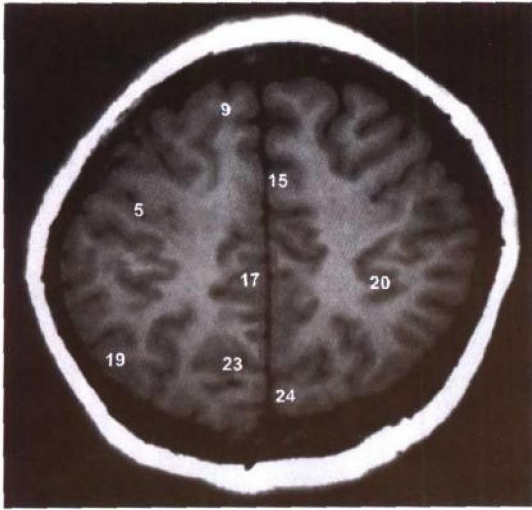
1. 头皮 scalp
2. 额骨 frontal bone
3. 冠状缝 coronal suture
4. 颞肌 temporalis
5. 中央后沟 postcentral sulcus
6. 中央沟 central sulcus
7. 额上沟 superior frontal sulcus
8. 上矢状窦 superior sagittal sinus
9. 额上回 superior frontal gyrus
10. 额中回 middle frontal gyrus
11. 顶骨 parietal bone
12. 中央前沟 precentral sulcus
13. 中央前回 precentral gyrus
14. 额内侧回 medial frontal gyrus
15. 中央旁小叶 paracentral lobule
16. 大脑镰 cerebral falx
17. 扣带沟缘支 marginal ramus of cingulate sulcus
18. 顶内沟 intraparietal sulcus
19. 顶下小叶 inferior parietal lobule
20. 枕叶 occipital lobe
21. 楔前叶 precuneus
22. 顶枕沟 parietooccipital sulcus
23. 中央后回 postcentral gyrus
24. 顶上小叶 superior parietal lobule
25. 人字缝 lambdoid suture
26. 枕骨 occipital bone

图 1-3 经顶枕沟上份的横断层

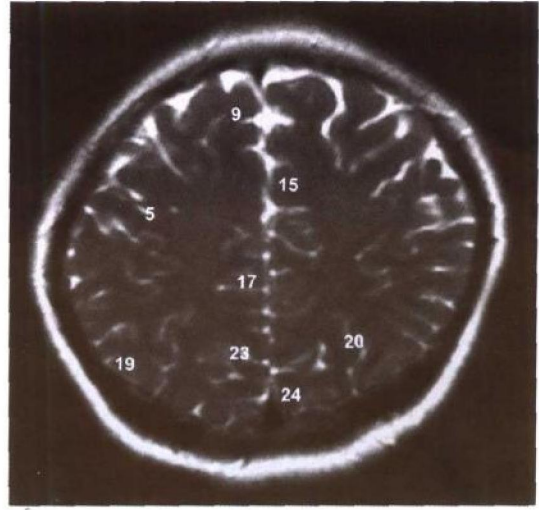
Fig.1-3 Transverse section through upper part of parietooccipital sulcus



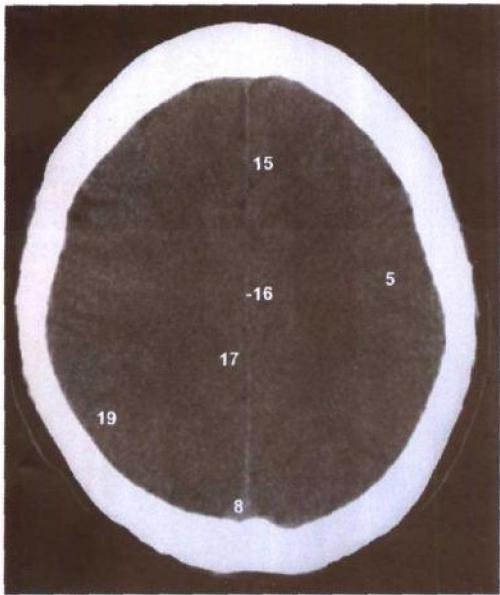
A. 断层标本(sectional specimen)



B. MRI T₁ WI



C. MRI T₂ WI



D. CT

1. 头皮 scalp
2. 额骨 frontal bone
3. 冠状缝 coronal suture
4. 颞肌 temporalis
5. 中央沟 central sulcus
6. 中央前沟 precentral sulcus
7. 额上沟 superior frontal sulcus
8. 上矢状窦 superior sagittal sinus
9. 额上回 superior frontal gyrus
10. 额中回 middle frontal gyrus
11. 中央前回 precentral gyrus
12. 顶骨 parietal bone
13. 中央后回 postcentral gyrus
14. 扣带沟 cingulate sulcus
15. 额内侧回 medial frontal gyrus
16. 大脑镰 cerebral falx
17. 扣带回 cingulate gyrus
18. 中央后沟 postcentral sulcus
19. 顶下小叶 inferior parietal lobule
20. 顶内沟 intraparietal sulcus
21. 顶下沟 subparietal sulcus
22. 楔前叶 precuneus
23. 顶枕沟 parietooccipital sulcus
24. 楔叶 cuneus
25. 枕外侧回 lateral occipital gyrus
26. 枕骨 occipital bone
27. 人字缝 lambdoid suture