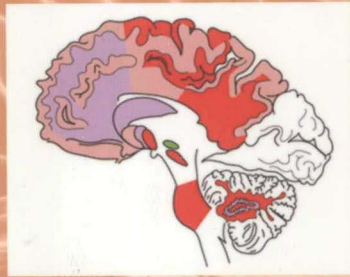
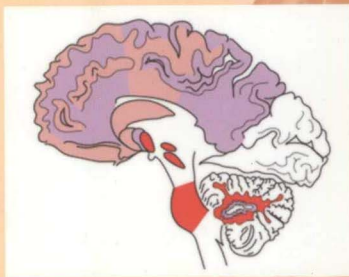


CLINICAL SYMPTOMATOLOGY OF
NEUROLOGICAL DISORDERS

下 卷

神经疾病 临床征候学

英汉双语版



► 主 编 / 卢祖能 王真真 关景霞



人民军医出版社

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PART SIX

第六部分

DISORDERS OF SOMATIC SENSATION AND PAIN

躯体感觉障碍和疼痛

第 19 章 躯体感觉障碍

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An appreciation of the functional anatomy of the sensory components of the nervous system is essential for properly interpreting the history and clinical signs of patients with disorders of somatic sensation. As used here, the term includes sensations of touch or pressure, vibration, joint position, pain, temperature, and more complex functions that rely on these primary sensory modalities (e.g., two-point discrimination, stereognosis, graphesthesia); it excludes special senses such as smell, vision, taste, and hearing.

为了恰当地解释躯体感觉障碍患者的病史和临床体征,必须理解神经系统感觉组成部分的功能解剖。这里所用的“躯体感觉”这一术语,包括触觉或压觉、振动觉、关节位置觉、痛觉、温度觉,以及更复杂的功能(例如两点辨别觉、实体觉、皮肤书写觉);更复杂的功能有赖于前述的那些初级感觉形式;躯体感觉不包括嗅觉、视觉、味觉以及听觉等特殊感觉。

Section 1 Somatic Sensory Pathways & Terms for Disorder of Somatic Sensation

第一节 躯体感觉通路与躯体感觉障碍的相关术语

I. Functional Anatomy of the Somatic Sensory Pathways

一、躯体感觉通路的功能解剖

The sensory pathway between the skin and deeper structures and the cerebral cortex involves three neurons, with two synapses occurring centrally. The cell body of the first sensory neuron of the spinal nerve is in the dorsal root ganglion (Figure 19-1-1).

皮肤及其更深部的结构,与大脑皮质之间的感觉通路,涉及三级神经元、两级突触(位于中枢)。脊神经的第1级感觉神经元胞体,位于后根神经节(图 19-1-1)。

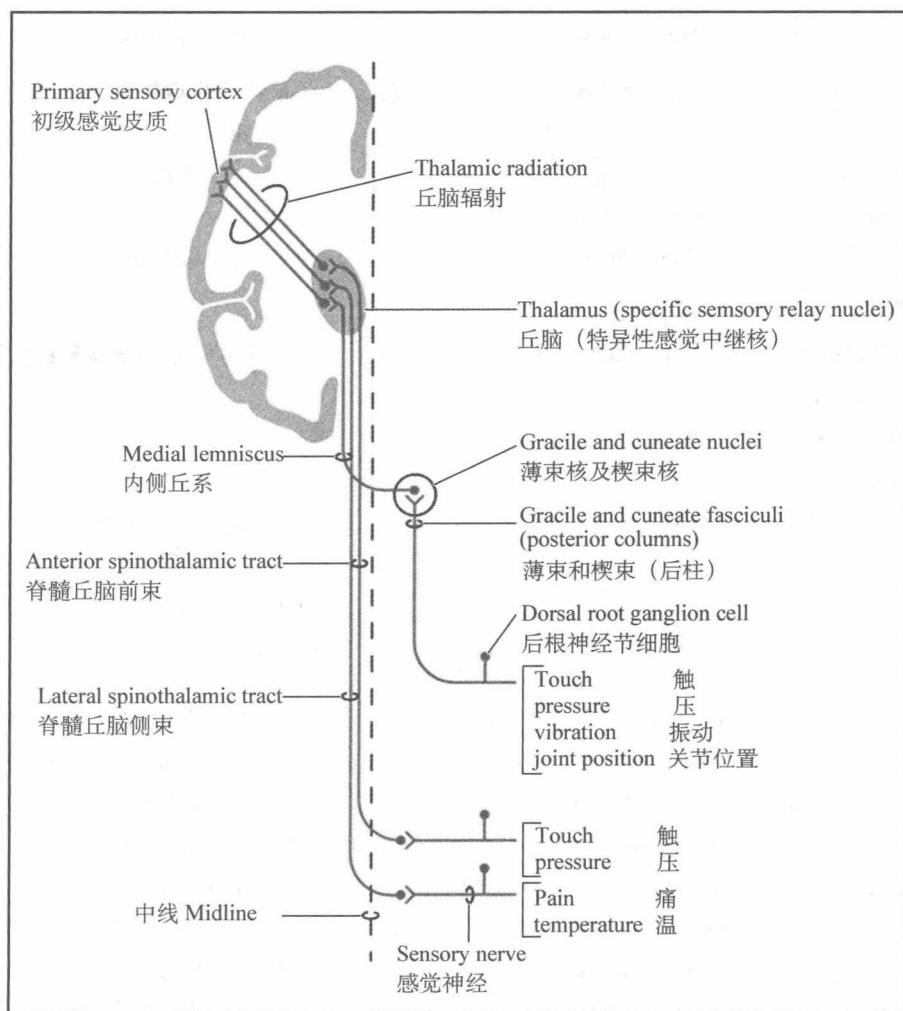


图 19-1-1 传导触觉、压觉、振动觉、关节位置觉、痛觉和温度觉的感觉通路

Each cell located there sends a peripheral process that terminates in a free nerve ending or encapsulated sensory receptor and a central process that enters the spinal cord. Sensory receptors are relatively specialized for particular sensations and, in addition to free nerve endings (pain), include Meissner corpuscles, Merkel corpuscles, and hair cells (touch); Krause end-bulbs (cold); and Ruffini corpuscles (heat).

The location of the first central synapse depends upon the type of sensation but is either in the posterior gray column of the spinal cord or in the upward extension of this column in the lower brainstem. The second synapse is located in the anterior part of the anterolateral nucleus of the thalamus, from which there is sensory radiation to the cerebral cortex.

In the spinal cord, fibers mediating touch, pressure, and postural sensation ascend in the posterior white columns to the medulla, where they synapse in the gracile and cuneate nuclei (see Figure 19-1-1). From these nuclei, fibers cross the midline and ascend in the medial lemniscus to the thalamus. Other fibers that mediate touch and those subserving pain and temperature appreciation synapse on neurons in the posterior horns of the spinal cord, particularly in the substantia gelatinosa. The fibers from these neurons then cross the midline and ascend in the anterolateral part of the cord; fibers mediating touch pass upward in the anterior spinothalamic tract, whereas pain and temperature fibers generally travel in the lateral spinothalamic tract (see Figure 19-1-1). Fibers from this anterolateral system pass to the thalamic relay nuclei and to nonspecific thalamic projection nuclei and the mesencephalic reticular formation.

Fibers from the lemniscal and anterolateral systems are joined in the brainstem by fibers subserving sensation from the head. Cephalic pain and temperature sensation are dependent upon the spinal nucleus of the trigeminal (V) nerve; touch, pressure, and postural sensation are conveyed mostly by the main sensory and mesencephalic nuclei of this nerve.

The appreciation of light touch depends on fibers that traverse the posterior column of the spinal cord in the

位于后根神经节的每个细胞发出周围突和中枢突,周围突终止于游离神经末梢或囊化的感觉感受器,中枢突进入脊髓。对于特定的感觉而言,其感觉感受器相对特化;除了游离神经末梢(痛觉)之外,感觉感受器还包括以下结构——触觉小体(麦斯纳小体)、梅克尔小体以及毛细胞(触觉);克劳斯终球(冷觉);鲁菲尼小体(热觉)。

第1级中枢突触的位置取决于感觉的类型,但要么在脊髓后方的灰柱(即后柱),要么在下位脑干(脊髓后柱向上的延伸)。第2级突触位于丘脑腹外侧核的前部,由此有感觉投射至大脑皮质。

在脊髓,传导触觉、压觉以及姿势(位置)觉的纤维在后柱(白质)上行至延髓,与薄束核以及楔束核形成突触(参见图 19-1-1)。来自这些核团的纤维越过中线,并经内侧丘系上行至丘脑。传导触觉的其他纤维以及传导痛觉和温度觉的纤维,与脊髓后角(特别是胶状质)的神经元形成突触。然后,后角神经元发出的纤维越过中线,并在脊髓腹外侧上行;传导触觉的纤维经脊髓丘脑前束上行,而传导痛温觉的纤维一般经脊髓丘脑侧束上行(参见图 19-1-1)。来自脊髓腹外侧系的纤维,途经至丘脑中继核、非特异性丘脑投射核以及中脑网状结构。

来自丘系和腹外侧系的纤维在脑干汇合,支配头部的感觉。头部的痛、温觉由三叉神经脊束核传导;触觉、压觉以及姿势觉则主要由三叉神经感觉主核和中脑核传导。

对轻触觉的感受取决于:①同侧薄束(下肢)以及楔束(上肢)的纤维(图 19-1-1、

gracile (leg) and cuneate (arm) fasciculi ipsilaterally (Figure 19-1-1 and Figure 19-1-2), passing to the medial lemniscus of the brainstem (Figure 19-1-3), and on fibers in the contralateral anterior spinothalamic tract. Pinprick and temperature appreciation depend upon the integrity of the lateral spinothalamic tracts (see Figures 19-1-1 and 19-1-2). The afferent fibers cross in front of the central canal after ascending for two or three segments from their level of entry into the cord.

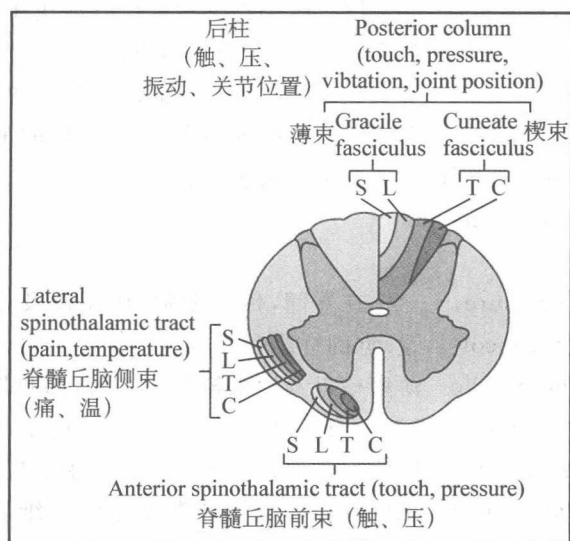


图 19-1-2), 位于脊髓后柱, 传至脑干的内侧丘系(图 19-1-3); ②对侧脊髓丘脑前束的纤维。对针刺以及温度的感受, 取决于脊髓丘脑侧束的完整性(参见图 19-1-1, 图 19-1-2)。传入纤维进入脊髓水平、上升 2~3 节段后, 在中央管前方交叉至对侧。

图 19-1-2 脊髓感觉通路的位置和层状构造
C(颈)、T(胸)、L(腰)、S(骶)表示各传导束内纤维起源的水平

II. Terms for Disorder of Somatic Sensation

Sensory disturbances may consist of loss of sensation, abnormal sensations, or pain.

The term paresthesia is used to denote abnormal spontaneous sensations, such as burning, tingling, or pins and needles. The term dysesthesia denotes any unpleasant sensation produced by a stimulus that is usually painless. The term numbness is often used by patients to describe a sense of heaviness, weakness, or deadness in the affected part of the body—and sometimes to signify any sensory impairment; its meaning must be clarified whenever the word is used.

Complete loss of touch appreciation is anesthesia, partial loss is hypesthesia, and increased sensitivity is hyperesthesia. The corresponding terms for pain appreciation are analgesia, hypalgesia, and hyperalgesia or hyperpathia; allodynia refers to the misperception of a trivial

二、躯体感觉障碍的相关术语

感觉障碍包括感觉缺失、异常感觉或疼痛。

感觉异常是指异常的自发性感觉, 例如, 烧灼感、麻刺感或发麻。感觉迟钝是指刺激所产生的、任何不愉快的感觉, 通常无痛。麻木常常是患者的用词, 用来描述身体受累部位的沉重感、无力感和无生气; 而且有时患者用“麻木”来表示任何的感觉障碍, 所以当患者用到麻木一词时, 必须弄清楚其真实的含义。

对触摸的感受完全丧失称为感觉缺失, 部分丧失称为感觉减退, 敏感性增加称为感觉过敏。对疼痛的感受相应的术语为痛觉缺失、痛觉减退以及痛觉过敏; 异常性疼痛是指将日常的触感错误地感

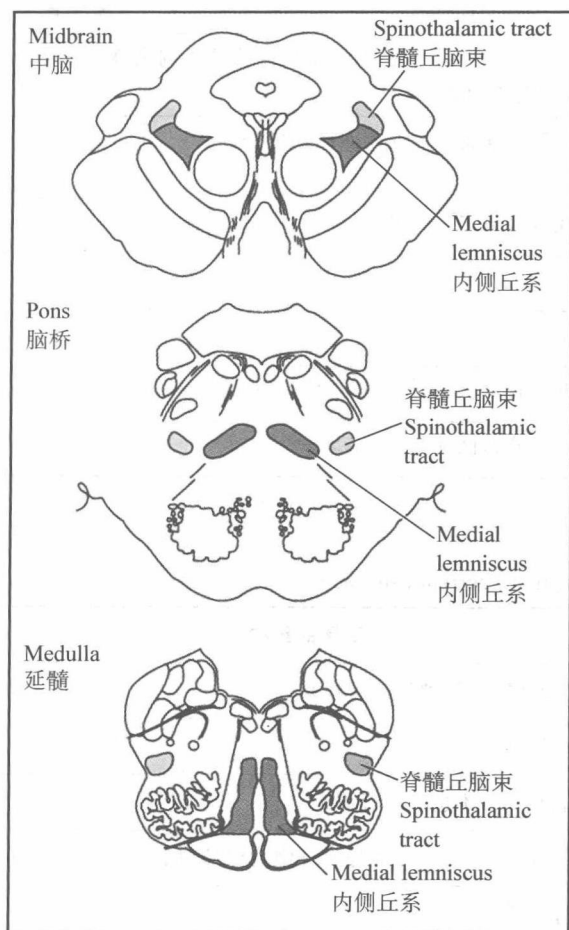


图 19-1-3 脑干的感觉通路

在延髓,传导痛、温觉的脊髓丘脑束的纤维,与传导触、压觉的内侧丘系的纤维隔得很开;在脑桥和中脑上行时,这些通路汇聚在一起

tactile sensation as pain.

Several terms related to the experience of altered sensations and pain are often used interchangeably but each has specific meaning (Table 19-1-1). The clinical characteristics of a sensation may divulge the particular sensory fibers involved (Table 19-1-2).

受为疼痛。

有关感觉变化以及疼痛体验的一些术语常常交互使用,但每个术语都有其特定的意义(表 19-1-1)。感觉的临床特征,对受累的、特定的感觉纤维可能会有所提示(表 19-1-2)。

表 19-1-1 描述疼痛和异常感觉的术语

Nomenclature in the description of pain and abnormal sensation

感觉迟钝	Dysesthesia	被患者描述为不愉快的任何异常感觉
痛觉过敏	Hyperalgesia	正常情况下的痛性刺激引起的夸大的疼痛反应;通常包括了恒定强度重复刺激以及残留感觉的总和
痛觉过度	Hyperpathia	对痛性刺激的异常痛性反应和夸大的反应;与痛觉过敏有关
感觉过敏/感觉减退	Hyperesthesia (hypesthesia)	对触觉刺激的夸大的感觉

(续 表)

异常性疼痛	Allodynia	对疼痛的异常感觉——正常情况下非痛性机械刺激或热刺激就可引起;通常有感觉延迟和感觉残留的成分
痛觉减退/ 痛觉迟钝	Hypoalgesia (hypalgesia)	对痛性刺激的敏感性下降以及对痛性刺激的阈值升高
感觉缺失	Anesthesia	对所有感觉(主要是触觉)的感知减退
振动觉缺失	Pallanesthesia	对振动的感知丧失
痛觉缺失	Analgesia	对痛性刺激的感知减退
感觉异常	Paresthesia	主要是不愉快的自发性异常感觉;通常描述为“发麻”
灼性神经痛	Causalgia	在一条或多条周围神经分布区的灼痛

* 另参见表 19-1-2

表 19-1-2 异常感觉的来源(Origin of aberrant sensations)

症 状	受累的结构
感觉异常、麻刺感、蜂鸣感(buzzing)	大纤维(周围神经或后柱)
烧灼感(burning)、热、冷	小纤维
针刺痛(prickling pain)	既有小纤维也有大纤维
假性抽筋/假性痉挛(pseudocramp)	一种感觉异常,可能与大纤维功能障碍有关
束带感(band tightness)	脊髓丘系
刀刺性痛/电击痛(lancinating pain)	小纤维神经病和神经根病变
痛觉过敏	部分性周围神经损害

Section 2 Clinical Evaluation of Patients

第二节 患者的临床评估

I . History

一、病 史

In obtaining a history of sensory complaints, it is important to determine the location of the symptoms; the mode of onset and progression of the symptoms; whether the symptoms are constant or episodic in nature; whether any factors specifically produce, enhance, or relieve symptoms; and whether there are any accompanying symptoms.

The location of symptoms may provide a clue to their origin. For example, sensory disturbances involving all

在获取感觉主诉的病史时,重要的是明确以下方面:症状的部位;症状的起病和进展方式;症状是持续性还是发作性;是否存在症状产生、加重或缓解的特殊因素;是否存在伴随症状。

症状的部位可能为其起因提供线索。例如,累及四肢体的感觉障碍,提示周围神

the limbs suggest peripheral neuropathy, a cervical cord or brainstem lesion, or a metabolic disturbance such as hyperventilation syndrome. Involvement of one entire limb—or of one side of the body—suggests a central (brain or spinal cord) lesion. A hemispheric or brainstem lesion may lead to lateralized sensory symptoms, but the face is also commonly affected. In addition, there may be other symptoms and signs, such as aphasia, apraxia, and visual field defects with hemispheric disease, or dysarthria, weakness, vertigo, diplopia, disequilibrium, and ataxia with brainstem disorders.

Involvement of part of a limb or a discrete region of the trunk raises the possibility of a nerve or root lesion, depending upon the precise distribution. With a root lesion, symptoms may show some relationship to neck or back movements, and pain is often conspicuous.

The course of sensory complaints provides a guide to their cause. Intermittent or repetitive transient symptoms may represent sensory seizures, ischemic phenomena, or metabolic disturbances such as those accompanying hyperventilation. Intermittent localized symptoms that occur at a consistent time may suggest the diagnosis or an exogenous precipitating factor. For example, the pain and paresthesias of carpal tunnel syndrome (median nerve compression at the wrist) characteristically occur at night and awaken the patient from sleep.

Of note, for the patients with disorder of somatic sensation, the distribution of sensory symptoms and signs often suggests their site of origin in the neuraxis, and their temporal profile may suggest their cause; sensory symptoms commonly precede sensory signs, the absence of signs in a patient with sensory symptoms does not imply a psychogenic basis of symptoms; a dissociated sensory loss—with abnormalities of some but not other sensory modalities—may occur with lesions of the central or peripheral nervous system.

II. Sensory Examination

In the investigation of sensory complaints, various modalities are tested in turn, and the distribution of any abnormality is plotted with particular reference to the normal root and peripheral nerve territories.

经病、颈髓或脑干病变或诸如过度换气综合征等代谢紊乱。累及整个一肢或身体一侧提示中枢性(脑或脊髓)病变。大脑半球或脑干病变可能导致偏侧感觉症状,但面部常常也受累。此外,可能存在其他症状和体征,例如,大脑半球病变时出现失语、失用和视野缺损;或者脑干病变时出现构音障碍、无力、眩晕、复视、平衡障碍和共济失调。

单肢的部分受累或躯干散在区域受累,提示单神经或神经根病变可能,这取决于其感觉障碍的确切分布。神经根病变时,症状可能表现为与颈部或背部的运动有某种相关性,而且疼痛常很明显。

感觉主诉的病程可有助于明确原因。间歇性或反复出现的短暂性症状,可能是感觉性痫性发作、缺血现象或诸如过度换气等代谢紊乱。间断发生的、在固定时间出现的局部症状,可能提示诊断或提示有外源性诱发因素。例如在腕管综合征(正中神经在腕部受压),其疼痛和感觉异常一般在夜间出现,并可使患者从睡眠醒来。

值得注意的是,对躯体感觉障碍患者而言,感觉症状和体征的分布,常常提示神经轴起源的位置,而时间进程可能提示病因;感觉症状常先于感觉体征出现,在有感觉症状的患者,无体征并不意味着症状就是心因性;中枢或周围神经系统病变均可能出现分离性感觉障碍(即某些感觉形式异常而其他感觉形式正常)。

二、感觉检查

有感觉主诉时,可依次检查各种感觉形式,并根据正常情况下神经根以及周围神经特定的支配区域,对任何异常的分布加以描绘。

i. Primary Sensory Modalities

1. Light Touch The appreciation of light touch is evaluated with a wisp of cotton wool, which is brought down carefully on a small region of skin. The patient lies quietly, with the eyes closed, and makes a signal each time the stimulus is felt.

2. Pinprick & Temperature Pinprick appreciation is tested by asking the patient to indicate whether the point of a pin (not a hypodermic needle, which is likely to puncture the skin and draw blood) feels sharp or blunt. Appreciation of pressure or touch by the pinpoint must not be confused with the appreciation of sharpness. Temperature appreciation is evaluated by application to the skin of containers of hot or cold water.

3. Deep Pressure Deep pressure sensibility is evaluated by pressure on the tendons, such as the Achilles tendon at the ankle.

4. Vibration Vibration appreciation is evaluated with a tuning fork (128 Hz) that is set in motion and then placed over a bony prominence; the patient is asked to indicate whether vibration, rather than simple pressure, is felt. Many healthy elderly patients have impaired appreciation of vibration below the knees.

5. Joint Position Joint position sense is tested by asking the patient to indicate the direction of small passive movements of the terminal interphalangeal joints of the fingers and toes. Patients with severe impairment of joint position sense may exhibit slow, continuous movement of the fingers (pseudoathetoid movement) when attempting to hold the hands outstretched with the eyes closed. For clinical purposes, both joint position sense and the ability to appreciate vibration are considered to depend on fibers carried in the posterior columns of the cord, although there is evidence that this is not true for vibration.

ii. Complex Sensory Functions

1. Romberg Test The patient is asked to assume a steady stance with feet together, arms outstretched, and eyes closed and is observed for any tendency to sway or fall. The test is positive (abnormal) if unsteadiness is markedly increased by eye closure—as occurs, for example, in tabes dorsalis. A positive test is indicative of grossly impaired joint position sense in the legs.

(一) 初级感觉形式

1. 轻触觉 对感受轻触的评估,可用一小束棉毛轻擦小片皮肤区域。嘱患者安静平卧、闭眼,让患者每次感受到刺激就给予示意。

2. 针刺和温度觉 对感受针刺的检查,可嘱患者示意针刺点(不用皮下注射针,这可能穿破皮肤并出血)感觉到是尖、还是钝。对针尖的压力或触动的感受,必须与尖锐度相区别。对感受温度的评估,可用盛有热水或冷水的容器放在皮肤上进行。

3. 深部压觉 对深部压觉可通过压迫肌腱进行评估,例如在踝部压迫跟腱。

4. 振动觉 对感受振动的评估,可将音叉(128 Hz)振动后置于骨性隆起处;嘱患者示意是否感受到振动,而不是单纯的压力。在许多健康老年人,膝以下对振动的感受可有障碍。

5. 关节位置觉 嘱患者示意手指和足趾末端骨间关节小的被动运动的方向。在关节位置觉严重受损者,当闭眼并试图使双手张开时,患者可能会出现手指缓慢、持续的动作(假性手足徐动样运动)。从临床的角度出发,可以认为关节位置觉以及感受振动的能力,均是脊髓后柱纤维传导的,但有证据表明振动并非如此。

(二) 复合感觉功能

1. 昂伯格试验 嘱患者双足并拢站稳,双上肢向前平伸、闭目,观察患者是否有摇摆或跌倒的趋势。如果闭眼时不稳定性明显增加,即为阳性(异常);例如,脊髓痨就是如此。试验阳性提示双下肢关节位置觉严重受损。