

踝关节塔门型骨折 22 例临床分析

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摘要:踝关节塔门型骨折是一种少见且治疗困难的关节内骨折。本文介绍 22 例该类骨折,分别采用单纯手法复位石膏外固定、撬拨复位钢针内固定、切开复位钢针内固定和踝关节融合术等方法。其结果以撬拨复位、切开复位钢针内固定的效果较好,而单纯手法复位石膏外固定和关节融合术的疗效较差,文中着重讨论了该病的发病机理,诊断及治疗等问题。

关键词:踝关节内骨折,塔门型 骨折复位 钢针内固定 关节融合术

踝关节的塔门型骨折是一种少见且治疗困难的关节内骨折。常因从高处坠落、塌方压伤等引起。1988 年 Mainwaring^[1]等首先报道并正式命名。国内冯峰^[2]等 1992 年报道 4 例。作者在复习了我院近 20 年来收治的 1695 例踝部骨折的病例中,塔门型骨折 22 例,约占 1.3%。现报导如下。

临床资料

本组 22 例中男 17 例,女 5 例;年龄 19~60 岁;右侧 15 例,左侧 7 例;就诊时间:半小时~1 月;高处坠落伤 16 例,塌方压砸伤 3 例,车祸伤 3 例;合并骨折:内踝骨折 6 例,外踝骨折 4 例,双踝骨折 6 例,跟骨骨折 2 例,胫骨髁部骨折 1 例,腰椎压缩性骨折 2 例;随访时间:14 个月至 15 年。

治疗方法

1. 因误诊为三踝骨折而采用单纯手法复位石膏外固定 9 例(其中Ⅲ度 6 例,Ⅳ度 3 例)。结果均差。二期行踝关节融合术。

2. 撬拨复位钢针内固定 4 例(其中Ⅰ度 2 例,Ⅱ度 2 例)。方法是:股神经加坐骨神经麻醉。患者仰卧,在电视 X 光机监视下,首先充分牵引,恢复胫骨长度。皮肤消毒,用 3cm 骨圆针自内踝上缘刺入皮肤,将粉碎骨块向远端撬拨,至关节面平整为止。然后钢针继续进入达对侧皮质骨,针尾折弯,留在皮下。助手维持牵引,石膏管型外固定。3 周后拆除石膏改夹板固定,同时进行功能练习。6 周解除夹板进行烫洗等物理治疗。8 周后扶拐行走。

3. 切开复位,钢针或螺丝钉内固定 6 例。(其中Ⅰ度 4 例,Ⅲ度 2 例)。方法是:麻醉、体

位同前。踝关节前侧纵形切口,显露骨折部,首先将较完整的内或外踝准确复位并固定,以此为标志,再将压缩的胫骨远端向下撬平,其上缘骨缺损处用松质骨块充填植骨。如有距骨骨折同时复位螺丝钉固定。术后预防感染,其他处理同前。

4. 踝关节融合术 3 例,1 例为陈旧性Ⅲ度损伤,2 例为Ⅳ度损伤。麻醉、体位及显露同前。在恢复胫骨长度后,其骨缺损处取自体髂骨或骨库骨植骨。术后管型石膏固定 3 个月。此 3 例损伤较重,无法修复关节平整,故统计为差。

治疗结果

1. 疗效评定标准:优:关节活动自如,无痛,可参加重体力劳动。X 线片示:骨折对位好,关节面平整,无倾斜,无创伤性关节炎改变;良:可参加一般劳动,肢体不短,踝关节从功能位始伸、屈受限分别小于 10°;差:关节痛、功能障碍,活动受限分别大于 10°。X 线片示:关节面不整,关节间隙变窄,肢体短缩超过 1.5cm,有严重创伤性关节炎之改变。

2. 结果:因误诊为三踝骨折而采用单纯手法复位石膏外固定 9 例(其中Ⅲ度 6 例Ⅳ度 3 例)。结果均差。撬拨复位钢针内固定 4 例的结果:优 2 例,良 2 例。切开复位,钢针或螺丝钉内固定 6 例的结果:优 2 例,良 2 例,差 2 例。踝关节融合术 3 例的结果均差。

讨论

1. 发病机理:踝关节由胫腓骨下端,距骨上关节面组成。胫骨下端为一向上凸的曲面,前宽后窄,内侧面延续为内踝。外侧面系腓骨

下端的内侧面,比内踝长约 1.5cm,通过下胫腓联合韧带的联结,构成踝穴。距骨向上的凸面呈鞍状,与踝穴相适应构成关节。因踝穴较深,故可以将其认为是一个不完善的杵臼关节。塔门型骨折亦由间接暴力引起。当外力撞击处于中立位的足部时,暴力沿胫骨干纵轴急剧向下传递,由于地心的反作用力向上经跟骨、距骨滑车与胫骨远端相撞。首先造成胫骨远端的垂直压缩,如暴力持续,则粉碎骨块向周围移位。1942 年 Lauge-Hansen^[3]强调踝关节骨折波及单踝、双踝或三踝骨折是创伤后局部病理变化的不同阶段。从本组病例分析,暴力开始是垂直传递,相继躯体随贯力的作用向不同方向倾斜。从而损伤在不同部位进行性加重。如躯体前倾时胫骨远端的前侧压缩加重,后仰时则后侧加重。如暴力还在持续,则造成距骨向不同方向脱位。本组向后上方脱位 5 例,向前上方脱位 3 例。如同时伴有旋转及内、外侧翻时,则造成内、外踝或双踝骨折,本组合并踝部骨折的共 16 例。冯峰等报告 4 例塔门型骨折中 3 例伴有距骨骨折,并做为诊断塔门型骨折的主要特征之一。本组 22 例中仅 2 例,占 9.1%。所以将距骨骨折做为塔门型骨折的主要诊断依据之一是有困难的。

2. 诊断: X 线片上的特有征象: (1.) 胫骨远端压缩性粉碎性骨折, 1 条或数条折线呈纵型通过胫骨下端穹隆部。(2.) 骨折块向上或周围移位, 关节间隙消失, 距骨陷入呈半脱位。(3.) 下胫腓联合无明显分离。(4.) 可伴有内、外踝或双踝骨折。

CT 扫描可确定骨折块的大、小、多、少及移位程度,以及韧带损伤的情况。对选择治疗方案具有重要意义。但目前在我国大部地区还不能普及应用的情况下,借助 X 线片来诊断和确定治疗方案也是可行的。

另外,对塔门型骨折的病人,不能忽略脊柱、胫骨髁部和跟骨的检查,以免漏诊。

关于塔门型骨折的分度方法:我们在冯峰等分度方法的基础上将其粗略地分为 IV 度,谨

与同道商榷。I 度:胫骨远端压缩性粉碎性骨折,折线呈纵形通过胫骨下端穹隆部。II 度:骨折块向上或周围移位,关节面不平整。III 度:关节间隙消失,距骨陷入或半脱位。IV 度:伴有内、外或双踝骨折,少数情况下有距骨骨折。本资料中 I 度 2 例,II 度 6 例,III 度 9 例,IV 度 5 例。

3. 治疗:塔门型骨折的主要病理变化为骨折塌陷而致胫骨缩短和粉碎骨片所致的关节面不平整。因此,作者同意 Mainwaring 等提出的治疗原则:在恢复胫骨长度的同时,应设法修复关节的平整。如手术无法修复,可考虑行踝关节融合术。我们认为对 I、II 度骨折可首先试行撬拨复位钢针内固定,如不成功再行切开复位内固定。强调 3 周后不负重功能练习。以磨造修复中的骨折裂隙,本组采用此方法治疗 4 例。经 5 年以上随访,优:2 例为 I 度损伤。良:2 例为 II 度。虽有轻度创伤性关节炎出现,但可参加原工作,无痛苦。切开复位内固定 6 例。优:2 例为 II 度损伤,而良和差者均为 III、IV 度损伤,分析原因,不外乎与骨折的程度和手术的质量密切相关。因此,手术中认真的操作,严格的骨折解剖复位和可靠的内固定,早期的功能锻炼是达到优良效果的重要环节。单纯手法复位石膏外固定,因骨折失去支点,手法不能将压缩的骨折复位,故不易采用。对手术无法恢复关节面平整和出现严重创伤性关节炎的病人行踝关节融合术,本组共 14 例。经长期随访,虽对生活、工作有某些不便,但稳定、无痛,有相当劳动能力。所以,目前看仍不失为一种可靠的治疗方法。

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Abstract of Original Articles

Clinical and experimental studies on spondylolithiasis treated by manipulation

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Displacement microsensors were applied to measure fresh cadaver specimens in mimic the displacement in movement and rotatory reduction. It was found that the inferior facet joint of the lumbar spine producing an upward and lateral displacement to enlarge the intervertebral foramen, the vertebral body producing a tendency of relatively backward and retaining to its original position. Through naked eye observation, there was increasing of the width of the isthmus under the action of manipulation of the gap of isthmus. Thirty-five cases of spondylolithiasis were treated by manipulation with satisfactory results, especially for those suffering with degenerative type. It showed that lying in supine position with flexion of knees and hip joints, by rolling the waist, sitting up exercise and iso-tension training are important procedures in therapy.

Key Words Spondylolithiasis Bio-mechanics Manipulation Iso-tension training

Clinical analysis of twenty-two cases of tower-door type of fracture of ankle joint

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Tower-door type fracture of the ankle joint is a rare and intra-articular fracture which is difficult to be treated. Twenty-two cases of such kind of fracture were treated with simple manipulative reduction and application of plaster of Paris as external fixation, prizing dispelling reduction and internal fixation with steel wire, steel wire internal fixation via open reduction, fusion of the ankle joint etc. Better results were gained with prizing-dispelling reduction and internal fixation with steel wire via open reduction. But simple manipulation with plaster of Paris as external fixation and joint fusion had worse results. Pathogenesis of the fracture diagnosis, therapeutic etc. problems were discussed.

Key Words Intra-articular fracture Reduction of tower-door type fracture
Internal fixation with steel wire Joint fusion

Cartilage callus in bone healing

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Through light microscopic non-decalcified bone histological, histochemical and electron microscopic observations on formation, evolution and ultrastructure of cartilage callus of rabbit radial bone fracture standard defect model during healing process, the results showed that the cartilage callus comes from differentiation of granular tissue of the fracture ends, its formation and reconstruction did not completely similar with ossification in the epiphyseal chondrium. There are five evolutionary stages of cartilage callus cells, the callus under electron microscopic

findings, i. e chondroblasts, chondrocytes hypertrophic chonocytes, degenerative chonocytes and remnant chondrocytes. We realized that 1)the chondrial callus is differentiated from interstitial cells surrounding the fracture end ,2)during reconstruction process, chondrial callus can directly form bone trabeculae. We support the hypothesis that hypertrophied chonocytes. can transfer to bone cells,3)chondrial callus bears important action during healing process. it can fulfil bone defect in the early stage, connect fracture ends, the fracture healing process is completed under the burden of gravity.

Key Words Cartilage callus Fracture healing Morphology

Experimental and clinical observation on Gao Wu Jia Su Shang Cha Ji in treating acute soft tissue injury

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Externally applied Gao Wu Jia Su, extract of Chinese herb Gao Wu Tou frost ointment was introduced to treat acute soft tissue injury . Through an observation of animal experiment and 500 patients ,the results indicated that the drug bears better dispelling action of edema, analgesic action and dispelling stasis, and it has no toxic and side—effect. The total effective rate reaches 99. 2%. It is easy to be applied ,so it is an ideal external used drug in treating acute soft tissue injury.

Key Words Soft tissue injury Gao Wu Jia Su External therapeutic method with Chinese herb Experimental study Clinical appilcation

Clinical observation of elastic external fixation and functional exercise under burder in treating non—union of tibia

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Li Kexin et al (李可心)

Twenty—two cases of non—union of tibia treated by external fixation with wire and functional exercise under burder. Among them, 10 cases were proliferative type, 12 atrophic type. The causes of tailure are 11 cases for defext in internal fixation, 4 for plaster of Paris fixator, 2 for self—made splint fixation with bad fixation , and 5 for infection of the fracture ends. Through a course of therapy from 87—189 days, with an average of 103 days, 19 cases healed within months ,3 with worse effectiveness. The result of analysis showed that, the maincause of non—union was due to insufficient therapy interference to natural healing process, with limitation of the ability of bone growth. Elasticexternal fixation can improve the stability of fracture ends, offer elastic and interrupted physiological pressure stress. It dons't limit the blood supply action of the muscle pump during functional exercies. It facilitaes recovery the ability of growth of the fracture ends .

Key words Non—union External fixator for fracture