extremities solutions

SURGICAL TECHNIQUE

WRIGHT.

CHARLOTTE™

Multi-Use Compression Screw

CHARLOTTE™

multi-use
compression screw

surgical technique

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CHARLOTTE™ MULTI-USE COMPRESSION SCREW

as described by
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INTRODUCTION

The CHARLOTTE™ Multi-Use Compression Screw is a cannulated, headless design that is appropriate for certain osteotomies and fusions of the forefoot and midfoot. The 3.0mm screws are particularly suited to fixation of 1st metatarsal osteotomies and for small joint periarticular fixation. The 4.3mm screws are excellent for talonavicular fusions, midfoot fusions, and Hallux interphalangal fusions.

DESIGN FEATURES

The CHARLOTTE™ Multi-Use Compression Screw obtains compression between two bony fragments via a differing thread pitch at the leading and trailing ends of the screw. The screw distinguishes itself from previous designs with its double-lead helical thread pattern at the leading end of the screw, which doubles the thread engagement in the distal bone fragment. In addition, its spiral-fluted cutting design allows the screw to be self-tapping and self-drilling in most bone.

SURGICAL GOALS

- To provide maximum compression across the fusion site of two adjacent bones.
- To obtain maximum thread engagement in the distal fragment for maximum compression.
- To ensure that the head of the screw is completely countersunk, so profile-related issues may be avoided.

SYSTEM BASICS

- All CHARLOTTE™ Multi-Use Compression Screw implant components are manufactured from surgical grade stainless steel.
- The 3.0mm diameter screw comes in 10-34mm lengths in 2mm increments.
- The 4.3mm diameter screw comes in 14-50mm lengths in 2mm increments, with additional 55mm and 60mm screws.
- The 4.3mm diameter screw from 36-60mm have a “long thread” version, which is threaded over half of its length, and a “short thread” version, which is threaded over one-third of its length.
- The 3.0mm screw is cannulated to work over a 1mm single-tip K-Wire, which is included in the set.
- The 4.3mm screw is cannulated to work over a 1.6mm single-tip K-Wire, which is included in the set.
- Cannulated Drills for the 3.0 and 4.3mm screws are included for use in hard cortical bone, an oblique approach, or when bicortical fixation is desired.
- Cannulated countersinks for the 3.0 and 4.3mm screws are included for countersinking the screw heads in hard cortical bone. These should also be used if the head will be placed in a thin, delicate section of bone.

FIGURE 1 |

FIGURE 2 |

SURGICAL TECHNIQUE - TALONAVICULAR FUSION

EXPOSURE/JOINT PREPARATION

One or two of the 4.3mm CHARLOTTE™ Multi-Use Compression Screws will be used for this procedure. Expose the talonavicular joint using a standard medial approach. Distract the joint with a lamina spreader, and sharply debride the articular cartilage to expose bleeding subchondral bone. A powered drill can also be used to further penetrate the subchondral bone to ensure that bleeding bony surfaces are in apposition prior to screw insertion.

K-WIRE PLACEMENT

Use a powered driver to place a 1.6mm K-Wire (P/N 44112008) through the medial cortex of the navicular. The K-Wire is directed from plantar medial to dorsal lateral through the talonavicular joint and advanced until it contacts (but does not penetrate) the lateral cortex of the talus. **| FIGURE 1** Verify the position of the wire fluoroscopically.

SCREW LENGTH DETERMINATION

Use the CHARLOTTE™ Cannulated Depth Gauge (P/N 44112002) over the K-Wire to measure the correct length for the 4.3mm screw. **| FIGURE 2**

Long or short thread length is most easily determined radiographically. If more than half of the K-Wire length is on the far side of the joint (in the talus), choose a CHARLOTTE™ Long Thread Screw. If not, choose a CHARLOTTE™ Short Thread Screw.

FIGURE 3 |

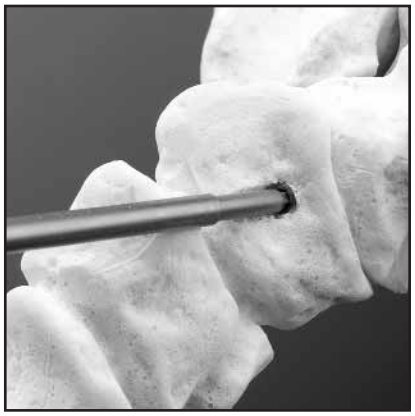

FIGURE 4 |

HEAD PREPARATION

The CHARLOTTE™ Multi-Use Compression Screw is designed to be self-tapping and self-drilling. However, in extremely dense cortical bone, it may be difficult to install the screw. Included are: 2.0mm drill (P/N 44112004) and 3.0mm head drill (P/N 44112012) for the 3.0mm screws; 3.0mm drill (P/N 44112003); and 4.3mm head drill (P/N 44112011) for the 4.3mm screws.

Use the drill and then the head drill over the K-Wire prior to screw insertion to prepare the bone.

SCREW PLACEMENT

Load the 3mm CHARLOTTE™ Cannulated Hex Driver (P/N 44112007) into the CHARLOTTE™ Cannulated AO Driver Handle (P/N 44112009). Use the driver to advance the chosen 4.3mm screw over the K-Wire. **| FIGURE 3** Advance the screw until the head is completely countersunk within the bone. **| FIGURE 4**

Depending on the stability of the first screw and patient related factors (obesity, post-operative compliance issues), a second screw may be used for additional fixation.

Surgical closure is then performed in the normal fashion.

ORDERING **information**

CHARLOTTE™ MULTI-USE COMPRESSION SCREW

PART NUMBER	DESCRIPTION
44110014	4.3MMX 14MM SHORT
44110015	4.3MMX 16MM SHORT
44110016	4.3MMX 18MM SHORT
44110017	4.3MMX 20MM SHORT
44110018	4.3MMX 22MM SHORT
44110019	4.3MMX 24MM SHORT
44110020	4.3MMX 26MM SHORT
44110021	4.3MMX 28MM SHORT
44110022	4.3MMX 30MM SHORT
44110023	4.3MMX 32MM SHORT
44110024	4.3MMX 34MM SHORT
44110025	4.3MMX 36MM SHORT
44110026	4.3MMX 38MM SHORT
44110027	4.3MMX 40MM SHORT
44110028	4.3MMX 42MM SHORT
44110029	4.3MMX 44MM SHORT
44110030	4.3MMX 46MM SHORT
44110031	4.3MMX 48MM SHORT
44110032	4.3MMX 50MM SHORT
44110033	4.3MMX 36MM LONG
44110034	4.3MMX 38MM LONG
44110035	4.3MMX 40MM LONG
44110036	4.3MMX 42MM LONG
44110037	4.3MMX 44MM LONG
44110038	4.3MMX 46MM LONG
44110039	4.3MMX 48MM LONG
44110040	4.3MMX 50MM LONG
44110041	M4.3MMX 55MM LONG

PART NUMBER	DESCRIPTION
44110042	4.3MMX 60MM LONG
44110001	3.0MMX 10MM
44110002	3.0MMX 12MM
44110003	3.0MMX 14MM
44110004	3.0MMX 16MM
44110005	3.0MMX 18MM
44110006	3.0MMX 20MM
44110007	3.0MMX 22MM
44110008	3.0MMX 24MM
44110009	3.0MMX 26MM
44110010	3.0MMX 28MM
44110011	3.0MMX 30MM
44110012	3.0MMX 32MM
44110013	3.0MMX 34MM
44112008	SINGLE K-WIRE, 1.6X150MM
44112000	SINGLE K-WIRE, 1.0X150MM
INSTRUMENTS	
44112007	3MM CANN HEX DRIVER
44112011	CANN. HEAD DRILL FOR 4.3MM SCREW
44112012	CANN. HEAD DRILL FOR 3.0MM SCREW
44112004	CANN. DRILL, 3.0MM SCREW
44112003	CANN. DRILL, 4.3MM SCREW
44112001	2MM CANN HEX DRIVER
44112009	AO DRIVER HANDLE
41112017	AO QUICK CONNECT, CANNULATED
44112002	DEPTH GAUGE (CANN.)
SURGICAL TRAY	
44112006	SURGICAL TRAY

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