

PRELIMINARY RESULTS OF HALLUX VALGUS SURGERY USING MAGNESIUM SCREWS

AUTHOR:

Timo Juutilainen , M.D., Ph.D.

Head of Foot and Ankle Surgery

Helsinki University Central Hospital (HUCH)

Peijas

Vantaa

FINLAND

INTRODUCTION

Magnesium is used in many different indications from the metal industry to health care. As early as 1938 reports on the use of magnesium plates and screws in experimental fixation of osteotomies were published in JAMA (McBride 1938).

Hallux valgus is the most common forefoot deformity, with an estimated prevalence of 23% to 35%. It causes symptoms on the medial edge of the foot, the sole, and the toes. Non-operative treatment may alleviate symptoms but does not correct the deformity of the big toe. Surgery is indicated if the pain persists. The correct operation must be selected from a wide variety of available techniques. Osteotomies are divided into three groups: proximal, diaphyseal or distal. In all procedures the osteotomy is mainly fixed with metallic implants or bioresorbable pins or screws. From excellent to very poor results have been published during recent decades.

This is a preliminary report of 32 consecutive hallux valgus scarf osteotomies fixed with bioabsorbable screws (MAGNEZIX® CS, see Fig. 1).

MATERIAL AND METHODS

One experienced foot surgeon operated on all 20 patients. All patients were female and they all had a hallux valgus deformity. Indication for operation was clear: The patients had consistent pain because of a big toe deformity. X-rays showed a malposition of the first metatarsal joint without arthrosis. And most important: the patients wanted to have an operation after outpatient polyclinic visits after the benefits and contraindications of surgery had been explained to them.

The operations were done between 27th April 2015 and 18th April 2016. Spinal anesthesia was performed with bloodless operation field (tourniquet on proximal thigh). Kefuroxime 3.0 g was used as prophylactic single dose antibiotic just before the tourniquet was applied. Medial incision was used and the capsule was opened longitudinally creating a distal based flap. Medial exostosis was removed. The first metatarsal was split into two parts (i.e. scarf osteotomy). The plantar part was displaced and rotated laterally. Fixation of the osteotomy was done using two MAGNEZIX® screws (3.2 mm in diameter). The capsule flap was reinserted using Vicryl® thread through the bone. Postoperatively a special protection shoe was used for six weeks. The patients were permitted and encouraged to move the first metatarsal joint without weight bearing as early as possible. Showering of the wound was allowed three days after the operation. Every patient was seen in the Outpatient Department six week postoperatively and x-rays were taken. A summary of patients and used implants is shown in tables 1-3.

RESULTS

There were no major problems during the healing period. No deep infections were noticed and there was no need for a second operation. There were no complications because of the used fixation material. Because this is a preliminary report, no functional measurements are shown here. All patients were asked about subjective satisfaction of the operation. All said that they would have the same operation if the other foot had to be operated in the future.

DISCUSSION

Hallux valgus surgery is a demanding procedure. Results and patients' hopes vary a lot. There are many ways to perform an operation and there is not one single method that is proven to be the univocal gold standard. It is difficult to compare results of different studies because groups are not homogeneous and objective scoring of all elements is not possible. Repeatability of results is poor or impossible. Patients' satisfaction is the most important feedback in hallux valgus surgery. No one is going to live longer because of hallux valgus surgery but hopefully after the correction and healing period their life quality is improved for a long time. MAGNEZIX® screws need little improvement and modification. The proximal part should be more conical and self-threading properties could be better. It is currently compulsory to countersink the proximal part of the screw and it is also recommended to drill the whole canal before inserting the screw. MAGNEZIX® screws should vanish in a few years. So there should be no need for hardware removal at any time. The first 20 hallux valgus operations using MAGNEZIX® screws were uneventful.

The preliminary results in our clinic are the same as compared to titanium or stainless steel screws, MAGNEZIX® screws offer a good alternative for fixation of first metatarsal osteotomies.



Fig. 1. MAGNEZIX® CS 3.2

TABLES

Table 1. Side

Right	Left	Total
17	15	32

Table 2. Age

Age	Follow-up
49.7 (23.4 - 69.1)	0.42 years (0.01 - 0.99)

Table 3. Used Screws

	10 mm	12 mm	14 mm	16 mm	18 mm
Proximal	15	15	1	1	0
Distal	0	1	14	13	4
Total	15	16	15	14	4

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23.04.2015 preop standing



16.06.2015 postop weight bearing 6 weeks



23.04.2015 preop



16.06.2015 postop 6 weeks



23.04.2015 preop standing



16.06.2015 postop 6 weeks



10.10.2014 preop weight bearing



18.12.2014 postop weight bearing 6 months



10.10.2014 preop



18.12.2014 postop 6 months



10.02.2014 preop non weight bearing



18.12.2014 postop weight bearing 6 months



14.10.2015 preop weight bearing



09.12.2015 postop weight bearing 6 weeks



14.10.2015 preop



09.12.2015 postop 6 weeks



14.10.2015 preop weight bearing



09.12.2015 postop weight bearing 6 weeks



09.06.2015 preop standing



15.03.2016 postop weight bearing 6 weeks



09.06.2015 preop



15.03.2015 postop 6 weeks



09.06.2015 preop standing



15.03.2016 postop weight bearing 6 weeks

Syntellix AG

Aegidientorplatz 2a
30159 Hannover

T +49 511 270 413 50
F +49 511 270 413 79

info@syntellix.com
www.syntellix.com

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www.syntellix.com

