
ANKLE ARTHROPLASTY

**AN ESSAY SUBMITTED FOR PARTIAL
FULFILLMENT OF MASTER DEGREE IN
ORTHOPAEDIC SURGERY**

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2004

DEDICATION

To the memory of my father, Mr. Ahmed Eid

*To the hope in a better future, to my sons, Seif El
Deen and Mostafa.*

Acknowledgement

First and foremost, thanks are all to Allah,

I find no words that express my extreme thanks, deep appreciation and profound gratitude to my Prof. Dr. Timour F. El-Husseini, professor of orthopaedic surgery, faculty of medicine, Ain Shams university, for giving me the privilege of working under his meticulous supervision and for his generous help, guidance, kind encouragement and valuable time he spent adding valuable suggestions and remarks.

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Contents

1. Introduction.
2. Anatomy of ankle joint.
3. Biomechanics.
4. Indications & contra indications.
5. Evolution and techniques
6. Prognosis & follow-up.
7. Complications.
8. Conclusion.
9. Summery.



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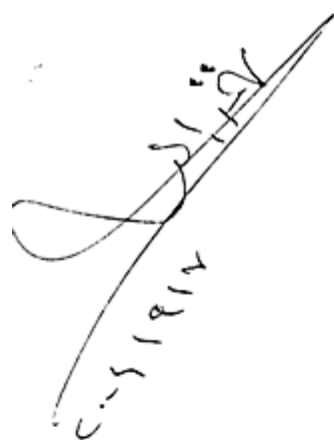
Total ankle replacement was developed in 1970s after the success of total hip & knee arthroplasty. The goal of total ankle arthroplasty is to decrease pain & improve function of lower limb. Ideally, to be superior to an arthrodesis, the ankle replacement should provide the patient with good patterns of joint motion and the ability to walk & run, & should have low complication rates. Unfortunately, total ankle arthroplasty has not been as successful as replacement of other joints. Published studies of early series with greater follow-up show that ankle arthroplasties did not provide lasting pain relief or improve function, and most ultimately failed.

During 1980s, many authors concluded that a total ankle arthroplasty was not warranted because of the generally poor long-term results and the high rate of complications. However newer second-generation design techniques, innovative operative procedures and dissatisfaction with results of ankle arthrodesis have renewed interest in total ankle arthroplasties. (1)

The ideal ankle prosthesis has yet to be determined, but much has been learned from early experiences in ankle arthroplasty. Modern implants are typically more respectful of anatomic concerns, have found a happy medium of constraint, & have found novel approaches to decrease interface stress. Biological fixation has improved on cemented results. Surgical techniques & understanding of wound healing & leguminous deficiency have advanced. Current series still have varied results, & longer-term follow-up is needed. (2)

Constrained systems, such as the Mayo and the Beck-Steffe ankle, resulted in high and early loosening, and a survival rate of approximately 40% at 10-year follow-up. Unconstrained systems, such as the Smith and Newton ankle, had similarly dismal results, but in these cases because of ankle instability and failure of the entire construct. Despite the disappointing results of these early implants, the long-term side effects of ankle arthrodesis along with the potential complications refueled the continued search for a reliable implant. The second generation of semiconstrained ankle implants has relied upon metallurgy improvements, more sophisticated instrumentation, and a better understanding of ankle joint biomechanics. There has also been a trend for prostheses that use biological fixation, which has also shown better results than cemented implants. A new generation of uncemented semiconstrained ankle arthroplasties was designed and has been implanted since the

1980s. The TNK Ankle (Kyocera, Kyoto, Japan), designed by Yoshiyuki Takakura, MD, PhD, is a ceramic hydroxyapatite-coated prosthesis that has shown good early results. The Scandinavian Total Ankle Replacement (STAR) (Waldemar Link GmbH & Co, Hamburg, Germany) is a meniscal bearing prosthesis that has shown promising results in young patients and patients older than 50 years of age at up to 15-year follow-up. Another unique design, the Agility Total Ankle Replacement (DePuy Inc, Warsaw, Ind), was developed with the aid of CAD-CAM computer technology and aimed to specifically address the modes of failure of its predecessors. This is a semiconstrained, uncemented device that has been designed to simulate the anatomical alignment of the talar dome and achieve increased component stability by the addition of an arthrodesis of the tibiofibular syndesmosis. The latter distributes the weight-bearing load between the distal tibia and the fused distal tibiofibular articulation.(3)



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A handwritten signature, possibly 'C. S. Myerson', is written diagonally across the page. Below the signature, the date '6-15-1912' is written.

Aim of the Work

A review to show efforts done since 1970s in the field of total ankle replacement till now. Showing generations of ankle prosthesis & follow-ups including benefits, complications & future expectations.

Dr. S. S. Singh
2019/12/14

LIST OF CONTENTS

Title	Page No
*Introduction	1
*Review of literature	
Chapter I: anatomy of the ankle joint.	4
Chapter II: ankle biomechanics.	16
Chapter III: indications and contraindications of TAA.	23
Chapter IV: evolution and techniques of TAA.	26
Chapter V: prognosis and followup.	88
Chapter VI: complications of TAA.	127
Chapter VII: conclusion.	152
*Summary.	155
*References.	158
*Arabic summary	

List Of Figures

Fig No	title	page No
1	The left talus bone	6
2	Lower end tibia (Ant. Aspect)	9
3	Lower end tibia (post. Aspect)	9
4	Lower end of right fibula, medial aspect	10
5	Ankle joint and tarsal joints from the medial side	11
6	Ligaments of lateral side of the ankle joint and dorsum of tarsus	13
7	Surfaces of tibia, fibula, and transverse tibiofibular ligament	14
8	Ankle joint dissected from behind and part of articular capsule removed.	14
9	Phases of walking cycle	18
10	Variations in angle between midline of tibia and plafond of mortise. B, Variations in angle between midline of tibia and empirical axis of ankle	19
11	Plantar flexion and dorsiflexion of ankle	21
12	TPR Ankle	28
13	Mayo Ankle	29
14	Smith Ankle	29
15	Anchoring surfaces of STAR	35

16	Articulation in STAR ankle	35
17	Ideal position of components	36
18	Leg on operating table	37
19	Skin incision	38
20	Ankle exposed.the osteophytes on tibia to be removed	38
21	Guide centered in tibial tuberosity¢er of ankle.	38
22	Adjustable cutting Block is applied	38
23	Appropriate block is used to guide talar dome cut	40
24	Medial&lateral sides(left) &anterior and posterior slopes(right) are shaped.	41
25	The groove for anchoring the keel of the talar component.	41
26	Reshaped talar dome(left) and trial template(right).	42
27	Fluroscopic image with template.	44
28	Holes for tibial component are drilled.	45
29	Tibial trials.	45
30	Definitive tibial component.	46
31	A-P & lat. Radiographs 2 days Postoperatively.	46
32	The HINTEGRA.	53
33	Anterior and posterior views show that the two screws stabilize the tibial component.	54
34	The two screws stabilize the talus component.	54
35	To achieve proper ligament balancing.	55

36	An oblique view shows the Salto Total Ankle Prosthesis.	60
37	Salto Total Ankle Prosthesis in situ.	61
38	All component surfaces in contact with bone are coated with plasma-sprayed Ti and HA.	61
39	The instrument system provides accurate component positioning..	62
40	The Salto Total Ankle Prosthesis with its lateral malleolar component is shown.	63
41	Photograph of the Agility ankle implant	67
42	Site of incision	68
43	Steps of agility TAA.	69
44-51	Steps of Buechel-Pappas TAA	78
52	TNK Japan fixed bearing	83
53	ESKA	84
54	Ankle Evalutive System.	85
55	ALBATROS.	86
56	ALPHANORM.	87
57	Ramses.	87
58	The tibial component was divided into six zones on the anteroposterior and three zones on the lateral radiograph	125

LIST OF TABLES

Tab.No	Title	page No
1	Summary of Operative Features and Associated Procedures in OA and RA Groups	93
2	Functional Results (Number of Cases)	98
3	Demographic Data on the Total Patient Population (122 Ankles)	105
4	Additional Surgeries	106
5	Revisions	106
6	Functional Score and Satisfaction of Patients (122 Ankles)	107
7	Demografic data on the total patient population (51 ankles)	110
8	Revisions	110
9	functional scores and satisfaction of patients without revision (39 ankles)	111
10	pending failures	113
11	data on the 14 ankles that had a revision or an arthrodesis	124
12	grade of arthritis in the hindfoot on the latest follow-up radiographs of 117 ankles	125

Introduction

INTRODUCTION
