



GMMA Haydarpaşa Training Hospital
Plastic, Reconstructive & Aesthetic Surgery Clinic
İstanbul/Turkey



Minced Nerve Tissue in Vein Grafts Used as Conduits in Rat Tibial Nerves

Cihan Şahin¹, Hüseyin Karagöz¹, Celalettin Sever¹, Yalçın Külahçı²,
Dilek Akakin³, Bircan Kolbaşı³, Ersin Ülkür¹, Fatih Peker⁴

¹GMMA Department of Plastic and Reconstructive Surgery, İstanbul, Turkey

²GMMA Department of Hand of Hand and Upper Extremity Surgery, Ankara, Turkey

³Marmara University Medical School, Department of Histology&Embriology, İstanbul, Turkey

⁴F&P Plastic Reconstructive and Aesthetic Surgery Center, İstanbul, Turkey

Nothing to Disclose



*Minced Nerve Tissue in Vein Grafts
Used as Conduits in Rat Tibial Nerves*

Introduction

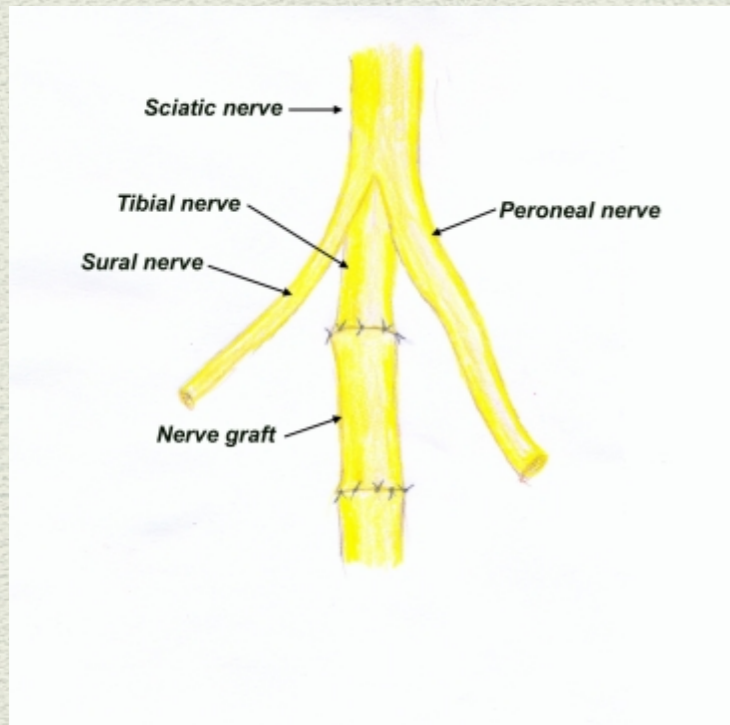
A total of 21 female Wistar rats were used in the study. Three groups, including seven rats each, were created:

- (I) nerve graft,
- (II) vein graft, and
- (III) minced nerve graft.

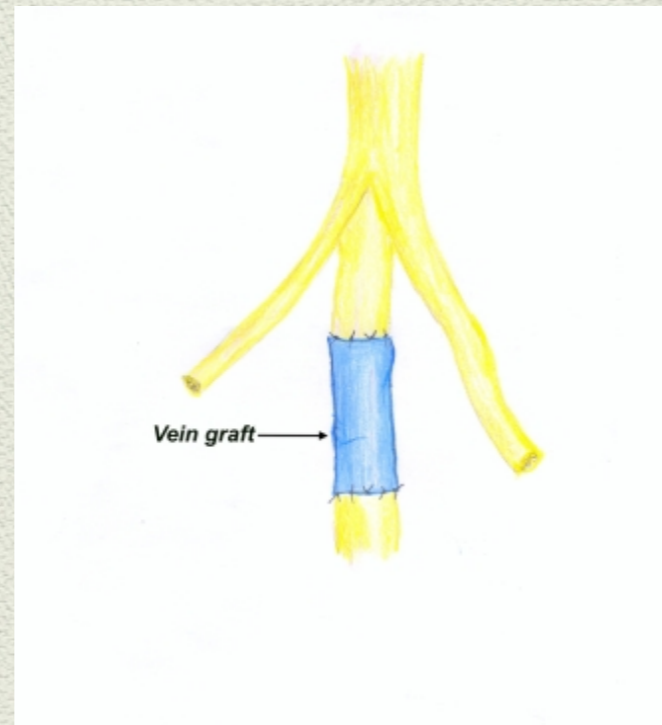


Minced Nerve Tissue in Vein Grafts Used as Conduits in Rat Tibial Nerves & Methods

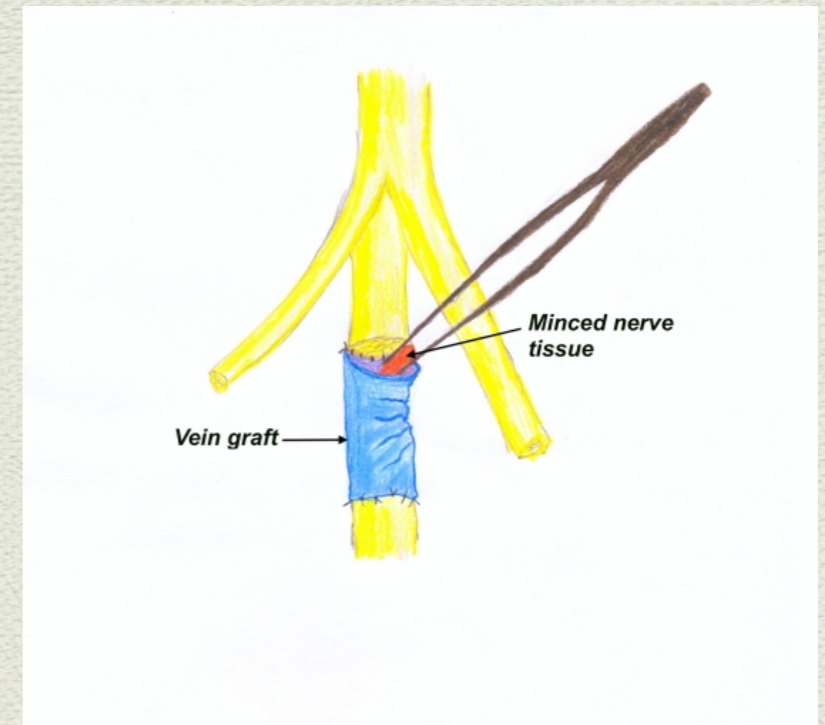
Materials



Nerve Graft Group



Vein Graft Group



Minced Nerve
Graft Group



1/3 cm nerve used



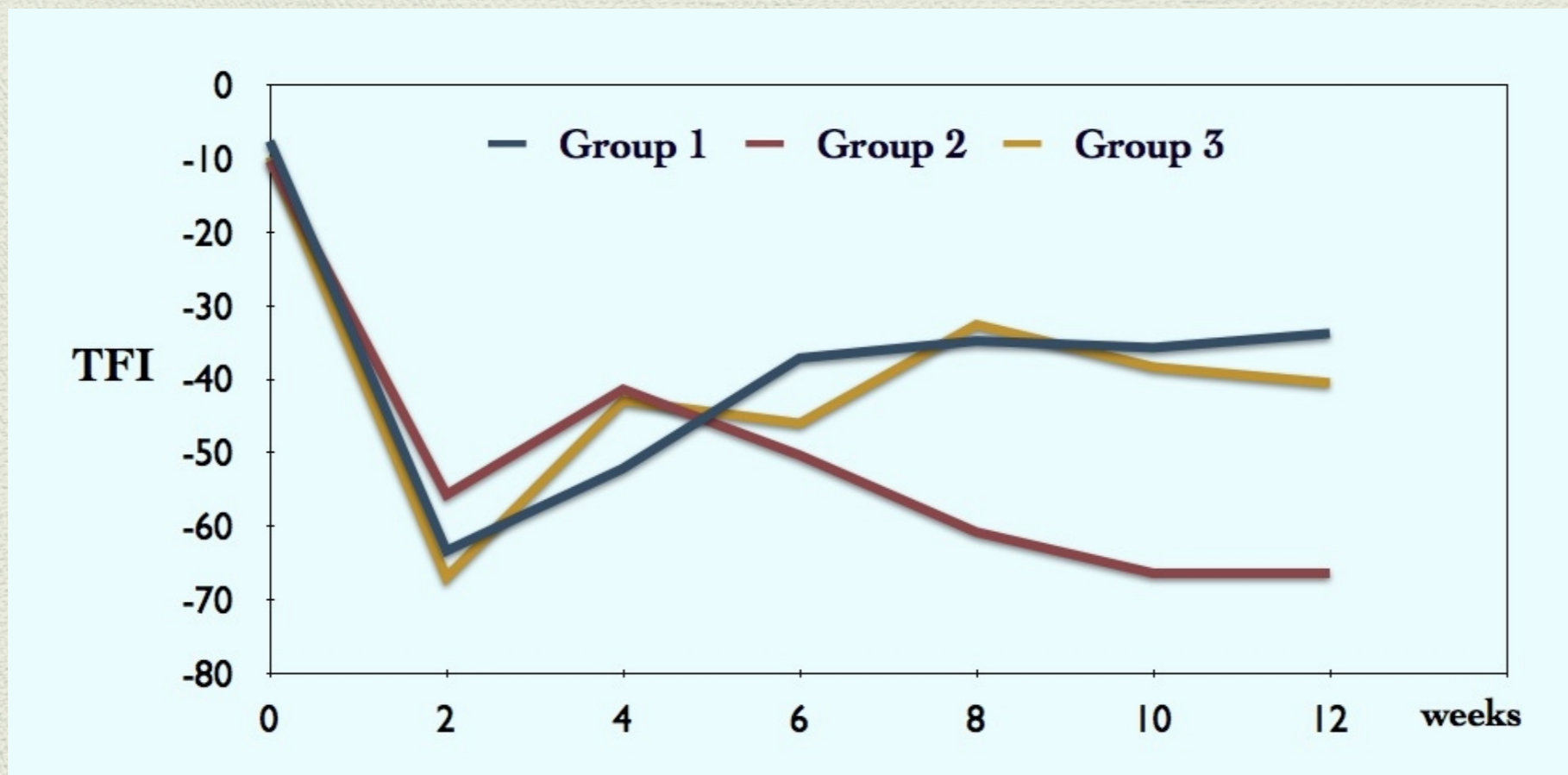
*Minced Nerve Tissue in Vein Grafts
Used as Conduits in Rat Tibial Nerves*
Assesment

- Walking track analysis
- ◆ Myelinated axon count
- ◆ Light microscopy
- ◆ Electron microscopy



*Minced Nerve Tissue in Vein Grafts
Used as Conduits in Rat Tibial Nerves*
Results

Walking Track Analysis



Group 1=Group 3 < Group 2 (p<0.05)



*Minced Nerve Tissue in Vein Grafts
Used as Conduits in Rat Tibial Nerves*

Results

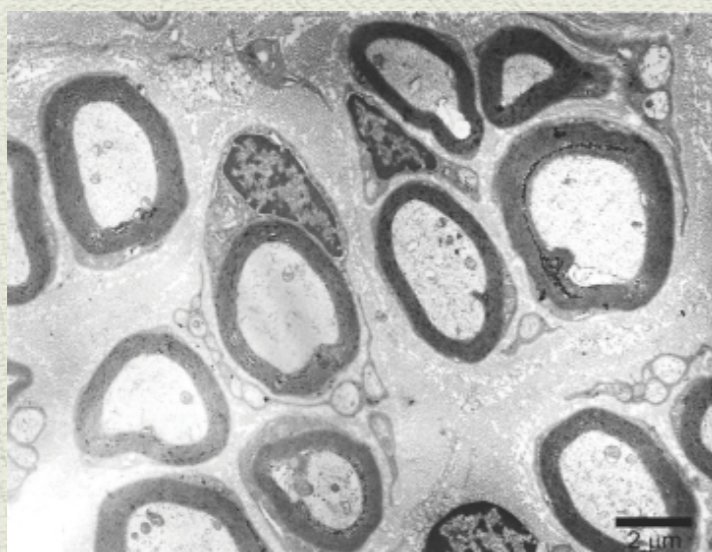
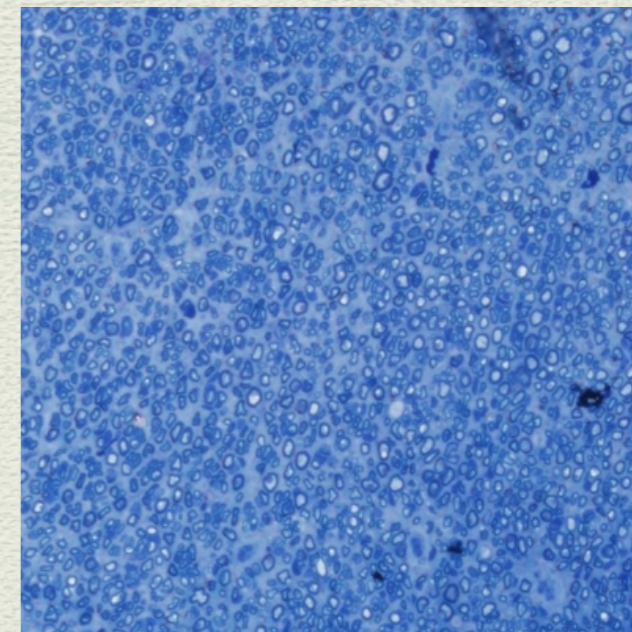
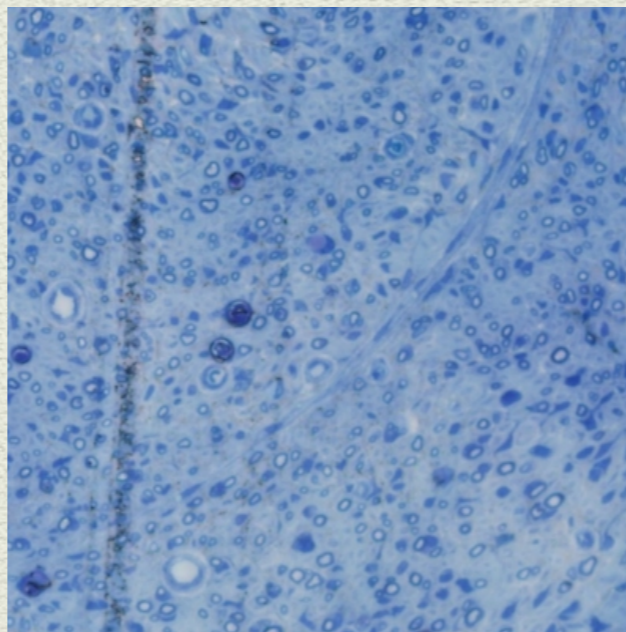
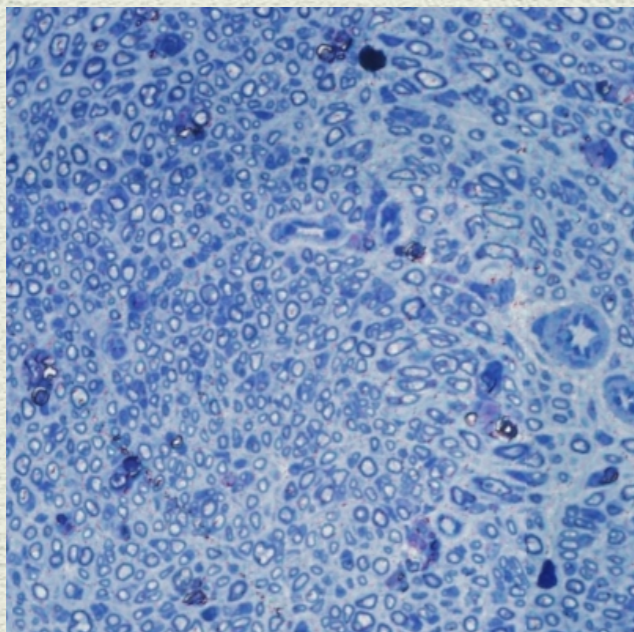
Axon Count Results

Weeks	Nerve Graft	Vein Graft	Minced Nerve Graft
1	4952	4397	5367
2	4764	4698	4986
3	4488	3298	4327
4	4856	3595	3033
5	4913	1810	5478
6	4885	2013	5142
7	5154	3264	4874
Average	4858 ± 202	3296 ± 1089	4743 ± 843

Group 1=Group 3 < Group 2 (p<0.05)



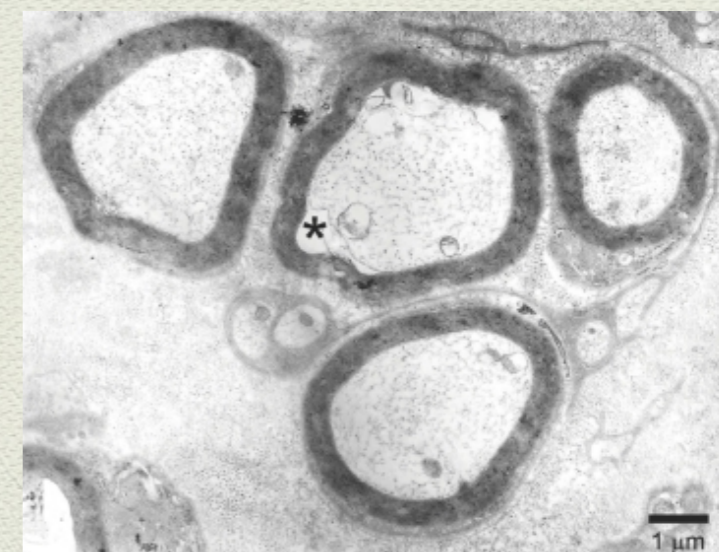
*Minced Nerve Tissue in Vein Grafts
Used as Conduits in Rat Tibial Nerves*
Results



nerve graft



vein graft



minced nerve graft



Minced Nerve Tissue in Vein Grafts Used as Conduits in Rat Tibial Nerves

Why vein graft?

- Vein grafts:
 - ◆ Nonimmunogenic
 - ◆ Rich in laminin
 - ◆ Easy to harvest
 - ◆ Available in a wide variety of sizes
 - ◆ Resilient enough to scar ingrowth
 - ◆ Permeable enough to nutrient diffusion



*Minced Nerve Tissue in Vein Grafts
Used as Conduits in Rat Tibial Nerves*
Discussion

- Functional & Morphological Assessment:

Group 1 = Group 3

1 cm

1/3 cm nerve graft



Minced Nerve Tissue in Vein Grafts

Used as Conduits in Rat Tibial Nerves

Discussion

- Clinical applications of the technique
 - ◆ 1: nerve graft from the distal part of the defect
 - ◆ 2: any nerve tissue that cannot be used as a nerve graft
 - ◆ 3: nerve graft which does not exceed 3 cm
 - ◆ 4: one nerve graft instead of two or more

This technique can be used in the repair of nerve defects after further experimental evidence and clinical trials