

A new method of treatment in degenerative osteoarthritis of the knee (experimental study)

Ahmet U. Turhan⁽¹⁾, Aydın Bıyıkloğlu⁽²⁾, Mehmet Yıldız⁽¹⁾, Muhittin Şener⁽¹⁾, Hafız Aydın⁽¹⁾

Diz dejeneratif osteoartritinin yeni bir metodla tedavisi (deneysel çalışma)^{***}

Bu çalışma diz protezlerine veya tibia osteotomilerine alternatif bir metod olarak planlanmıştır. Semitendinosus tendonu tibia platosuna ray gibi tesbit edilerek plato yükten kurtarılmıştır. Aynı zamanda femur kondilinin tendon üzerinde hareketi sağlanmıştır.

Anahtar kelimeler: Semitendinosus tendonu, diz dejeneratif osteoartriti

This study was planned as an alternative method to tibial osteotomies or knee prostheses. The semitendinosus tendon was attached on the tibial condyl like rail. As a consequence, the tibial condyl was escaped from the pressure, on the other hand the femoral condyl was moved on the tendon

Key words: Semitendinosus tendon, degenerative osteoarthritis of the knee

Material and method

Tendons, menisci and knees of human origin have been used in this study. The tendons and menisci were obtained from a patient in whom hip disarticulation was performed because of a tumor. The tendons of long peroneal, long extensor hallucis and digitorum, long flexor hallucis and digitorum and anterior and posterior tibial muscles were used in this study.

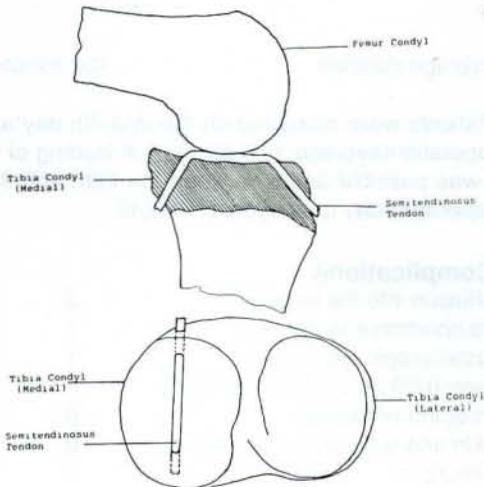


Figure 1: The interposition of the semitendinosus between the condyles of the femur and tibia

All the tendons used were tested by the Trebel Universal Test Machine. 400, 600, 1000 and 1500 kilograms were applied to all tendons with 40 % capacity

of the machine and subsequent alterations were noted. Another knee of a human cadavre with an intact semitendinosus muscle was prepared for the experiment. Having opened tunnels anteriorly and posteriorly at the tibial plateau, semitendinosus tendon was passed through and inserted on the knee anteriorly providing an interposition between the femoral and tibial condyles. Following these procedure, the knee joint was observed during flexion and extension. Additionally, compressive force by Trebel Test Machine was applied to menisci as well as the tendons.

Results

These results were derived from the study

1. Tendons used could manage staying intact though they were compressed between two rigid surfaces.
2. There had been a minute decrease in thickness of the tendons, especially at 400 kg of loading.
3. The tendons have lost their intactness at or above 1500 kg of loading.
4. In spite of the decrease in thicknesses at 400 kg of loading they could preserve their solid structures.
5. When the same procedure was performed on menisci, they did reply similarly.
6. No problem during the motion of flexion and extension was noticed when the tendon was transposed in the knee.

(1) KTÜ, Tıp Fakültesi Farabi Hastanesi Ortopedi ve Travmatoloji Kliniği

(2) KTÜ, Mühendislik-Mimarlık Fakültesi Makine Bölümü

^{***} Bu çalışma KTÜ, Tıp Fakültesi Ortopedi Bölümü ile KTÜ, Müh. Mim. Fak. Makine Bölümü'nün işbirliği ile yapılmıştır.

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Authors address

*Dr. Ahmet U. Turhan
KTÜ. Tıp Fak. Farabi Hastanesi
Ortopedi ve Travmatoloji Anabilim Dalı
Trabzon*