

# Evaluation of Fascia Transversalis Plication: A Safe and Efficient Technique in No-Mesh Inguinal Hernia Repair

*Fasya Transversalis Plikasyonunun Değerlendirilmesi: Greftsiz İnguinal Herni Onarımında Güvenli ve Etkili Bir Teknik*

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**Amaç:** İnguinal hernilerin onarımında farklı teknikler kullanılmaktadır. Fasya transversalisin plikasyonu tekniği greft kullanılmayan modifiye bir gerilimli onarım tekniği olarak kliniğimizde on beş yıldır başarıyla uygulanmaktadır. Bu çalışmanın amacı bu tekniğin uzun dönem sonuçlarının geriye dönük olarak incelenmesidir.

**Gereç ve Yöntem:** Kliniğimizde Ocak 2015 ve Ocak 2016 arasında fasya transversalisin plikasyonu tekniğiyle ameliyat edilen inguinal herni hastalarına telefonla ulaşılmıştır. Olası uzun dönem komplikasyonlarla ilişkili olabilecek semptomlar detaylı olarak sorgulanmıştır. Pozitif semptomu olan hastalar hastaneye çağırılarak muayene edilmiştir. Tanımlayıcı istatistik analizi yapılmıştır.

**Bulgular:** Toplam 185 hastadan 84'üne ulaşılmıştır. Ortalama takip süresi 15,82 ± 2,75 aydır. Seksen dört hastanın 12'sinde (%14,3) en az bir semptomun varlığı tespit edildi. Toplam 84 hastaya uygulanan 92 herni onarımından 2'sinde (%2,2) nüks tespit edildi. Toplam 9 hastanın (%11,0) devam eden ağrı şikayetleri olduğu, bu hastaların vizüel analog skalaya göre ortalama ağrı düzeylerinin 2 ± 0,87 (en az 1, en fazla 3) olduğu görüldü.

**Sonuç:** Fasya transversalisin plikasyonu düşük nüks ve komplikasyon oranlarıyla güvenli bir inguinal herni onarım tekniğidir. Greft kullanılmaması ve cerrahi süresini belirgin bir şekilde azaltması bu tekniğin önemli artılarıdır.

**Anahtar Sözcükler:** *Fasya Transversalis, İnguinal Herni, Kronik Ağrı, Mesh, Nüks*

**Aim:** Different techniques have been developed for the surgical treatment of inguinal hernias. Fascia transversalis plication technique has successfully been applied in our clinic for 15 years as a modified tension repair technique without mesh. The aim of this study was to retrospectively investigate the long-term outcomes.

**Material and Methods:** Inguinal hernia patients who had undergone fascia transversalis plication technique between January 2015 and January 2016 were questioned via telephone. The presence of any symptoms regarding late term complications were questioned in detail. Patients with symptoms were referred to the hospital and examined. Descriptive statistics were determined.

**Results:** Eighty-four out of 185 patients were reached. The mean follow-up period was 15.82 ± 2.75 months. Of the 84 patients, 12 (14.3%) had at least one of the symptoms. Recurrence was found in 2 (2.2%) of 92 hernia repairs applied to 84 patients. A total of 9 patients (11.0%) were found to have pain complaints. Pain averages of these 9 patients were 2 ± 0.87 (minimum 1, maximum 3) according to visual analog scale.

**Conclusion:** Fascia transversalis plication repair is a safe hernia repair technique with low complications and recurrence rates. The absence of use of mesh and significant shortening in the duration of surgeries are important advantages of this technique.

**Key Words:** *Chronic Pain, Fascia Transversalis, Inguinal Hernia, Mesh, Recurrence*

Inguinal hernia repair is one of the most common surgeries (1). Lifetime risk for inguinal hernia formation is around 27% in males and 3% in females (2). Different techniques have been developed for the surgical treatment of inguinal hernias over a hundred years since the technique of

tension repair described by Bassini (3). The popularity of techniques that are relatively easy to implement, having low risk and low recurrence and complication rates are increasing (3). Approaching with this point of view, Coskun's fascia transversalis plication technique has successfully been

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applied in our clinic for 15 years as a modified tension repair technique without mesh (4,5). As a relatively new technique, the results of the fascia transversalis plication technique are still under investigation. The aim of this study was to retrospectively investigate the long-term outcomes of patients who received Coskun's fascia transversalis plication repair.

### Methodology

All inguinal hernia patients who had undergone fascia transversalis placement technique between January 2015 and January 2016 by two general surgery specialists in Ankara Numune Training and Research Hospital were included in the study. Patients who could not be reached by telephone, patients who died for a reason other than hernia, patients who had previously undergone inguinal hernia repair, and patients with femoral hernia were excluded. The patient was contacted by telephone and the pain, swelling, redness, numbness and late term complications such as chronic pain, infection, neurotomy and recurrence were questioned in detail. Patients with any of these symptoms were referred to the hospital and examined by one of the general surgery specialists. The pain level of the patients who complained of pain was assessed by visual analogue scale. In addition, it was recorded by questioning whether the pain was continuous or not. The obtained results were recorded and descriptive statistics were determined.

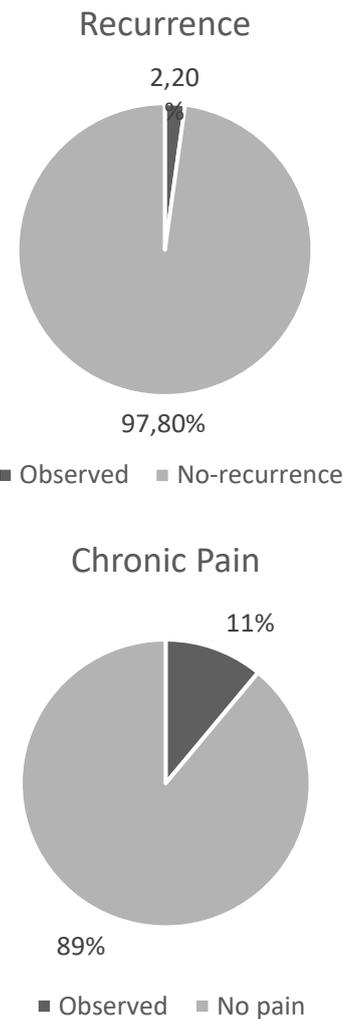
### Results

There were a total of 151 patients in the database that met the basic criteria. 85 (56.3%) patients were reached using the communication information given by the patients. A patient was found to have died due to non-hernia reason within the follow-up period. 84 patients without inguinal hernia repair were

included in the study. 81 males (96.4%), and 3 females (3.6%) had a mean age of  $52.21 \pm 16.47$ . It was seen that 8 of the patients (9.8%) were operated bilaterally due to bilateral inguinal hernia. When the results of the 92 hernia repair surgeries were examined, it was seen that 68 hernias were indirect (79.3%), 16 were direct hernia (16.3%) and there was pantaloon hernia in 4 cases (4.3%). The distribution of hernias according to the Nyhus classification is given in Table 1. The mean follow-up period was determined as  $15.82 \pm 2.75$  months. Of the 84 patients, 12 (14.3%) had at least one of the symptoms we have questioned and were invited to the hospital and examined by the surgeon. Recurrence was found in 2 (2.2%) of 92 hernia repairments applied to 84 patients. It was seen that both patients who had recurrence were treated unilaterally and one of the two patients had direct hernia and the other had the indirect hernia. A total of 9 patients (11.0%) were found to have pain complaints. All 9 patients were the patients treated unilaterally. While pain was observed in 2 (13.3%) of the patients with direct hernia and 7 (9.6%) of the patients with indirect hernia repair, no pain was present in the patients with pantaloon hernia. Pain averages of these 9 patients were  $2 \pm 0.87$  (minimum 1, maximum 3) according to visual analog scale. It was learned that the pain of all 9 patients was intermittent and was described like burning. In 2 patients, the pain-triggering factor was determined as physical coercion, while in one patient it was cold weather. Six other patients did not specify a pain-triggering factor. Complaint of numbness was not found in any of the patients.

**Table 1.** Distribution of hernias according to Nyhus classification.

Nyhus Type	Number of Hernias	%
1	8	8,7
2	65	70,7
3a	15	16,3
3b	3	4,3



**Figure 1.** Percentages of observed recurrence and chronic pain

### Discussion

Inguinal hernia repairs have a considerable place in the practice of a general surgeon at all times. Different techniques have been defined and gained popularity at different times over a hundred years from the definition of Bassini's tension repair technique up to these days. Accepted techniques seem to have similar recurrence rates (6). Today, the most common techniques are endoscopic repairs from the posterior repair techniques, and Lichtenstein tension-free hernia repair from anterior repair techniques (1).

In this study, we aimed to investigate long term results of fascia transversalis

plication technique which is an anterior repair technique. In this technique of tension repair presented by Coskun, after the detailed examination of the myopectineal orifice, double layer plication of fascia transversalis on itself without incising it is the basic principle (5).

The Lichtenstein technique, one of the most frequently preferred anterior repair techniques, has gained popularity by advancing one step ahead of its predecessors with the convenience of the application. Lichtenstein repair, which became possible with the introduction of meshes, has started to achieve low recurrence rates of Shouldice repair, which is a relatively invasive procedure. However, this success has also brought about mesh-related complications. It is estimated that approximately half of all hernia recurrences are associated with infection (7). Mesh can increase risk of infection development by foreign body reaction (8). In addition, non-infectious mesh complications can be annoying for patients and can lead to re-surgical need. Coskun's fascia transversalis technique is a no-mesh anterior repair technique developed by considering the advantages and disadvantages of the pioneering techniques (4,5). The

principles of introducing the entire myopectineal orifice to be examined for the presence of hernia, using endogenous tissue instead of prosthetic material, and ensuring that hernia repair is practical without deteriorating fascia transversalis has been adopted (4).

The first long-term results of the technique were satisfying (5). In a study involving 493 patients with a mean follow-up of approximately 40 months, recurrence rate was 3.1%. There was no difference in recurrence between the two groups when compared with the Lichtenstein repair group. It was observed that early hematoma and late paresthesia complications were less in Coskun repair group, and no difference was observed between the two groups in terms of other complications (5). In our study with the mean follow-up period about 16 months, the recurrence rate was 2.2%. This rate is extremely reasonable for any hernia repair technique in the literature. Achieving low recurrence rates without the use of a mesh is of great importance. It should be kept in mind that complications such as mesh-related pain and mesh reaction will never be countered by this technique. It should also be noted that the main cause of technical difficulties experienced in recurrent hernia surgery

is the mesh used in the first surgery. One of the important advantages of the fascia transversalis plication technique besides not using mesh is ease of application. It has been shown that the duration of surgery is significantly shorter than that of Lichtenstein repair (5).

While the complaint of numbness due to long-term complications in our study was not seen in any patient, mild chronic pain was seen in 10.71% of patients. In a prospective study of 466 patients undergoing Lichtenstein's repair, 19% of patients were found to have pain at different levels after one-year follow-up (9). Considering similar results in the literature, it can be argued that our results are reasonable.

## Conclusion

Coskun's fascia transversalis repair is a safe hernia repair technique with low complications and recurrence rates. The lack of use of mesh and significant shortening in the duration of surgeries are important advantages of this technique.

Conflict of interest: The authors declare that they have no conflict of interest.

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