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KYPHOTIC ANGLE INCREASE AFTER THORACAL VERTEBRA KYFOPLASTY: A CASE REPORT

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ÖZET

Torakolomber ve lomber fraktürlerde birçok sınıflama mevcuttur ve tedavi yöntemleri bu sınıflamalara göre belirlenmiştir. Başlıca tedavi yöntemi gerekli hastalarda anterior, posterior ya da kombine füzyon cerrahisidir. Özellikle cerrahi süresinin kısa olması avantajı nedeniyle son zamanlarda perkütan yolla uygulanan girişimler önem kazanmıştır. Kırığın sınıflandırılması neticesinde uygulanan cerrahi sonrası takipte angülasyon derecesine bağlı başka cerrahi tedavi gerektiren kifoz oluşabilir. Bu çalışmada, kifoplasti işlemi sonrası takibinde artan angülasyon sonucu posterior füzyon cerrahisi gereksinimi doğan olgu sunulmuştur.

Anahtar kelimeler: Torakal fraktür, kifoplasti, kifotik açı

ABSTRACT

There are many classifications for thoracolumbar and lumbar fractures and treatment methods have been determined according to these classifications. The main treatment method is anterior, posterior or combined fusion surgery in necessary patients. Recently, percutaneous interventions have gained importance, especially due to the advantage of the short duration of surgery. Post-traumatic kyphosis, which requires other surgical treatment depending on the degree of angulation, may occur in the follow-up after the surgery performed as a result of the classification of the fracture. In this study, a case requiring posterior fusion surgery as a result of increa-sed angulation in the follow-up after kyphoplasty procedure is presented.

***Keywords**: Thoracic fracture, kyphoplasty, kyphotic angle*

INTRODUCTION

Many classifications have been made in thoracolumbar fractures from past to present and treatment methods have been tried to be determined according to these classifications. However, which patient should be treated conservatively and which patient should be operated on and which surgical technique should be preferred is still a matter of debate (1). Long-term absolute bed rest, painkillers and corset use are conservative treatment. Surgical approaches are used in patients with neurological deficits. Anterior-posterior procedures are performed in stabilization surgery. In recent years, alternative treatment options such as vertebroplasty and kyphoplasty have been developed in the treatment of compression fractures (2,3).

CASE REPORT

A 16-year-old male patient applied to the emergency service after a bicycle accident. The patient had dyspnea and described pain in the thoracic region with palpation. There was no neu-rological deficit in the examination of the patient. Multiple rib and sternum fractures, hemothorax and pneumothorax were seen in the thorax CT examination of the patient. T4-5-7 compression and T6 stable burst fracture detected. The patient was followed in the immobile intensive care unit in extubated condition. The patient's pneumothorax and hemothorax regressed, and surgery was decided for the patient. T6 kyphoplasty procedure was applied to the patient with sternum fracture in order to shorten the surgical time in terms of prone position complication. The patient's preoperative kyphotic angle value was 37.47(figure 1), and the kyphotic angle after kyphoplasty was 32.41 (figüre 2). Postoperatively, the patient was mobilized limitedly with a kypho-orthosis. The patient was discharged with recommendations. The patient came for control on the 14th postoperative day. In the control examination, the kyphotic angle value was measured as 34.21. The change in angle was minimal, the recommendations were repeated to the patient. The kyphotic angle was measured as 46.26(figure 3) in the patient's control on the 28th postoperative day. Fusion and kyphosis surgery was recommended to the patient with back pain. Stabilization and kyphosis surgery was performed with pedicle screw at thoracic 3-4-5-7-8 levels. Postop kyphotic angle was measured as 26.14. The patient's back pain regressed, and the patient was discharged with recommendations.

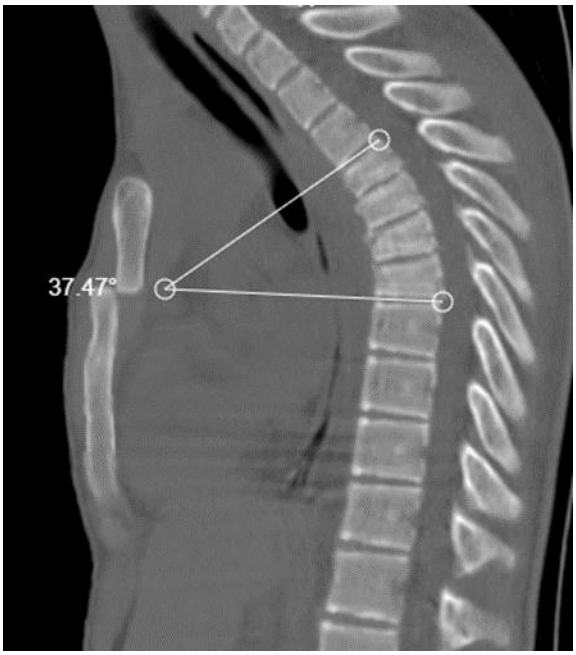

Figure 1. Preop kyphotic angle value 37.47

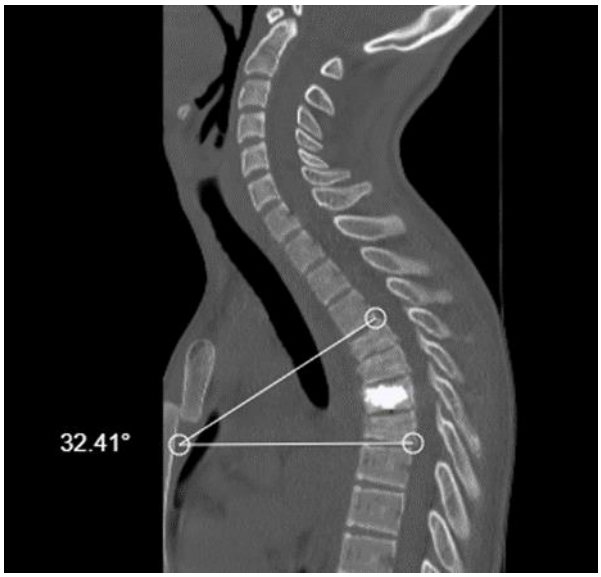

Figure 2. The kyphotic angle value after kyphoplasty is 32.41

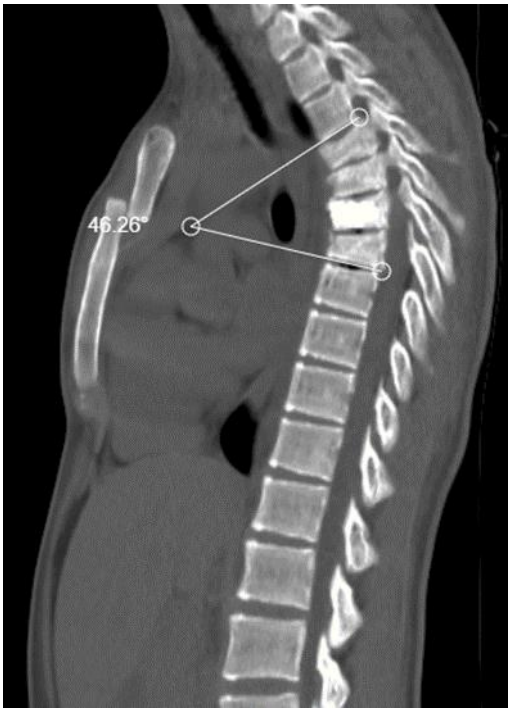

Figure 3. Final kyphotic angle value before fusion surgery 46.26

DISCUSSION

Trauma is the most common cause of vertebral fractures, apart from osteoporosis (4). Va-rious classification systems have been developed depending on the anatomical condition of the fractu-re or the type of trauma (5). However, it is still unclear whether conservative treatment or surgi-cal treatment will be given to the patient (1). Percutaneous balloon kyphoplasty with percu-taneous polymethylmethacrylate (PMMA) injection; is the strengthening of vertebrae that have been fractured due to osteoporosis, pathology, or trauma. It has been observed that healing is achieved with percutaneous cement injection into the vertebral body (6).

One of the most important sequelae of vertebral fractures is the development of posttrau-matic kyphosis. Insufficient treatment of fracture is a factor in the formation of kyphotic defor-mity (7). Especially in the postoperative period, progressive neurological deficit and pain indicate progressive kyphotic deformity (8). Back pain reported by the case at the last control; It is the most important indicator of increasing kyphosis. Orthoses are recommended for patients to cor-rect posture and straighten the thoracic spine and provide additional clinical benefit (9). In our case, it is noteworthy that the patient did not comply with orthosis use and restricted mobiliza-tion rules.

Biomechanical studies have shown that reduction of a fractured vertebra changes the sa-gittal balance by causing the spinal segment to become unstable (10). Considering that the preo-

perative kyphotic angle is the balance point as a result of the strength of the vertebral body affected by the trauma, it can be thought that the postoperative kyphotic angle should not exceed the primary preoperative kyphotic angle (11). In our case, the postoperative kyphotic angle was lower than the preoperative kyphotic angle. In the following period, an increase in the kyphotic angle was observed in the follow-up examination of our postoperative patient. this increased kyphotic angle was wider than the preop kyphotic angle. Therefore, fusion surgery was decided.

Treatment of vertebral fracture is determined by considering the current classifications and the systemic condition of the patient. Patients should be followed closely in terms of orthosis use, compliance with mobilization restrictions, pain status, and kyphotic angle in the postopera-tive period.

Patients with clinical signs or neurological deficits require surgery. The risk of developing early instability complications should be considered in Parkinson's patients who underwent lumbar fusion surgery.

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