INTRODUCTION

Chronic mid back pain is a less commonly seen than low back pain. Linton et al., did a population based survey of spinal pain in 35–45 years olds with thoracic pain at 15% [1]. Of the many causes of mid back pain the thoracic facet joint may be a possible pain generator. It was first proposed as a source of pain by Wilson in 1987 [2]. The joint itself is a synovial joint which on animal models has shown extensive innervations [3]. Dissection studies of the

Background:
This study tests the hypothesis that of bipolar radiofrequency thermocoagulation of the thoracic facet joint capsule may provide a safe and effect method of pain control from thoracic facet origin.

Methods:
Among patients suffering from localized mid back pain, nine patients with thoracic facet disease confirmed by magnetic resonance image and diagnostic thoracic facet block were enrolled. Bipolar radiofrequency ablation in the inferior aspect of the thoracic facet joint was done. Visual Analog Scale (VAS) was measured pre-intervention and 1 month post-intervention. Any complications and changes in amount of pain medication were recorded.

Results:
Significant 47.6% reduction in VAS was noted at 1 month. There were no serious complications.

Conclusions:
Intra-articular bipolar radiofrequency thermocoagulation of the thoracic facet joint may be a technically easier and valid method of treating mid back pain of thoracic facet origin. (Korean J Pain 2014; 27: 43-48)

Key Words:
facet, radiofrequency, thermocoagulation, thoracic.

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Thoracic facet joints have shown in humans to be innervated from the medial branch of the dorsal rami above and below the facet joint [4]. Unlike the lumbar medial branches, the course of the medial branch in the thoracic tends to be variable depending on the thoracic level (Fig. 1, 2). Unlike the medial branch in the lumbar spine, the medial branch in the thoracic spine lays in the space between the transverse processes as it passes dorsally. It then courses over the lateral end of the superior border of the transverse process before entering the muscle compartment of the mid back. This typical course is seen at the T1–T3 and T9–T10. The T11 and T12 medial branch, due to the shortened transverse process, tends to hug the base of the superior articulating process more like a typical lumbar spine. At the T4–T8 level, the medial branch is located in the soft tissue between the transverse process and therefore does not have as consistent skeletal landmark to place a radiofrequency cannula for ablation as other vertebral body levels (Fig. 1, 2) [4,5]. Two studies have used radiofrequency thermocoagulation (RFTC) of the medial branch for thoracic pain with moderate benefit [6,7]. Literature for using bipolar intra-articular RFTC for large synovial joints such as the sacroiliac joint may point to a technically easier mode of treatment [8,9]. This pilot study attempts to see if bipolar RFTC is possible safe and effective technique for denervating the thoracic facet joint.

MATERIALS AND METHODS

After IRB approval, 9 patients were selected to have bipolar RFTC. These patients had localized mid back tenderness with pain on extension and lateral bending with no radicular symptoms. All patients had MRIs showing facet disease, no disc extrusions, and no cord/root compromise. These levels were injected with 1 ml of a solution containing 9 ml of 0.5% marcaine mixed with 40 mg of depomedrol using anterior/posterior (AP) intra-articular approach as outlined in the International Spine Intervention Society (ISIS) guidelines [6]. Each injection was confirmed after injection of 0.5 ml of isovue-m300 contrast producing an arthrogram. Patients who received at least >50% relief for 8 hours were enrolled in the study. One month later, two Baylis (RFF Baylis, Baylis Medical, ON, Canada) 20 gauge 10 cm curved radiofrequency canula with 5 mm active tips were guided by fluoroscopy into the inferior portion of the facet joint using the ISIS approach. Each canula was placed side by side in the inferior aspect of the thoracic facet joint 0.5 cm apart (Fig. 3). Confirmation of cannula placement was noted on lateral view (Fig. 4). Motor testing was done at 2.5 volts and 2 Hz with no radiculopathy.