THE MORPHOMETRIC STUDY OF L2-S1 LUMBAR SPINE USING MAGNETIC RESONANCE IMAGING: FEASIBILITY ANATOMY ANALYSIS FOR OBLIQUE LUMBAR INTERBODY FUSION (OLIF) APPROACH IN MALAY MALAYSIAN POPULATION

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Background

Oblique Lumbar interbody fusion (OLIF) approach, one of the minimally invasive spine surgery (MISS) approaches was recently introduced in lumbar fusion surgery. To date, there was no proper feasibility analyses exist to evaluate anatomy features that complicated this new approach especially in our Asian population.

Objective

To determine feasibility anatomy features that may complicate OLIF surgical approach in Malay Malaysian population.

Methods

Cross-sectional study with 110 patients presented for lumbar spine assessment. Distance between anterior plane of disc and anterior plane of psoas muscle (PDP), lateral border of aorta and anteromedial border of psoas muscle (PAP), mid-sagittal line of the inferior end plate of L5 to medial border of the left common iliac vessels, and the distance between attachment of the psoas muscle and posterior border of the inferior vena cava (IVC)/common iliac vein (PVP) was taken via magnetic resonance image.

Results

Approximately 6% of the patients have psoas muscle located anteriorly to anterior disc at L3-L4, 30 % at L4-L5 with significantly larger found in male patients. Smallest oblique corridor was found at L4-L5 level, with incidence of 41% for both genders. IVC was located posteriorly to psoas attachment (PVP) in 16% of cases.

Conclusions

The anatomic features complicating the oblique lumbar approach to L2-S1 were observed in about 30-40 %. In 16 % of the cases, special care would be required to avoid the IVC injury during cage insertion, as in these patients the IVC was posterior to the attachment of the psoas muscle.