

P1-11.**Three dimensional morphology of lumbar facet in patients with degenerative spondylolisthesis**

(大学院一年・整形外科)

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【Purpose】 The three dimensional biomechanics of lumbar degenerative spondylolisthesis remains unclear. The purpose of the present study was to analysis the morphological character in patients with spondylolisthesis by Computed Tomography (CT) and radiography.

【Subjects & methods】 This study is retrospective analysis of the spino-pelvic alignment in population of 94 patients with a L4 lumbar spondylolisthesis (listh-G) in 44 cases and compared to no listhesis group (no listh-G) in 50 cases. Spondylolisthesis was defined as an anterior slip of L4 on L5 of 5% or more as seen in the lateral radiograph of the lumbar spine in the neutral position. In this study, three different dimensional planes of facet angle (sagittal plane, SP; horizontal plane, HP; oblique plane, OP=joint surface plane) are measured by the radiographs and CT in patients with spondylolisthesis before the operation. SP and OP were measured by a straight line connecting the midpoints of the anterior and posterior vertebral cortices and an anterior to posterior straight line positioned parallel to the facet joint on the oblique radiographs of the lumbar spine. HP was measured by CT same as above.

【Results & Discussion】 There were less correlation among SP, OP and HP (0.02-0.4). Regarding to L4/5 in HP, there was significant difference between listh-G and no listh-G. As to SP and OP, there is less difference between these groups. Previous reports introduced the two theories of spndylolisthesis; one is dysfunction of the disc, and the other is the horizontalization of the lamina and the facets and mentioned the relation between lumbar spondylolisthesis and the shape of lumbar facet joints. However, so far, the three dimensional analysis is few and in this study, we analyzed the correlation the each plane of facet joints and

studied the meaning of facet horizontal change and vertical change. From our results, there is less correlation among each three plane of facet joints and the vertical change of facet joint is more influence than horizontal change. The reason of those results may be that the force of anterior slip dose mainly not occur upward vertical force but downward on disc height loosening. This finding suggests that sagittal alignment of the facet joint is not essential as a factor for the development of the slip. Slipping can occur without sagittal alignment of the facet joint.

P1-12.**Total sagittal spinal alignment after endoscopic surgery in patients with lumbar disc herniation**

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【Purpose】 To evaluate total sagittal spinal alignment after endoscopic surgery in LDH patients and healthy volunteers.

【Subjects & Methods】 This study analyzed 102 patients (44 patients by MED, and 58 patients by Love's open surgery) with LDH and 50 healthy volunteer. The following parameters were measured on the lateral whole-spine standing radiographs at before the operation and 6 months after the operation: distance between the C7 plumb line and the posterior superior corner on the superior margin of S1 (SVA: sagittal vertical axis), lumbar lordotic angle between the superior margin of the first lumbar vertebra and the first sacral vertebra (LISI), pelvic tilting angle (PA) and pelvic morphologic angle (PRS1). Subjective symptoms were evaluated by the Japanese Orthopedic Association Score (JOA score) for lower back pain (29 points).

【Results & Discussion】 The mean SVA value of the preoperative LDH group (MED: 47.5 ± 46.5 mm, Love: 38.9 ± 45.7 mm) was significantly larger than that

of the control (-1.3 ± 19.1 mm), while L1S1 was smaller (MED: $35.9 \pm 15.6^\circ$, Love: $37.3 \pm 13.2^\circ$) and PA was larger (MED: $25.0 \pm 10.5^\circ$, Love: $26.7 \pm 9.6^\circ$) in LDH than control group ($49.9 \pm 9.9^\circ$ and $17.3 \pm 5.1^\circ$, respectively). At 6-month MED postoperatively, value of MED group (SVA: -8.0 ± 21.3 mm, PA: $17.8 \pm 6.5^\circ$, LSA: $35.4 \pm 7.1^\circ$, L1S1: $48.3 \pm 9.4^\circ$), the mal-alignment recovered to almost the same level as the control group. SVA correlated with the subjective symptoms measured by the JOA score. Value of Love group (SVA: 16.2 ± 24.7 mm, PA: $20.4 \pm 7.5^\circ$, LSA: $34.3 \pm 6.3^\circ$, L1S1: $43.8 \pm 10.9^\circ$), change in shape of trunk position of anteversion / less lumbar lordosis is left.

The sagittal spinal alignment of preoperative LDH had more anterior translation of C7 plumb line, less lumbar lordosis and a more vertical sacrum. MED's postoperative assessment had improved at trunk position of anteversion, less lumbar lordosis and a more vertical sacrum.

【Conclusion】 Measurement of these spinal parameters permitted to diagnose the pathophysiology in LDH. MED was more superior in improvement of spine sagittal alignment than Love.

P1-13.

観血的整復 (ピン固定含む) を要した学童期における外傷の検討

(茨城・整形外科)

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【目的】平成17年度から「運動器の10年」の一環として学校における運動器検討体制の整備が重要課題として取り上げられております。小児人口が減少し、テレビゲームが普及。又、高学歴社会となり、一方車社会も進み、子供たちは運動不足となり、軽微な外傷でも骨折を起こす傾向にあります。今回、過去5年間に観血的整復を要した学童期(7歳~12歳)の症例につき検討した。

【対象】過去5年間に観血的整復を要した学童52症例につき検討を加えた。受傷場所は学校内27例、学校外25例でほぼ同数。性、年齢による頻度は12歳男子が13例と最も多く次に10歳と11歳女子が6例ずつ

であった。受傷部位は肘周辺が17例と最も多く、次に前腕部が9例、大腿部6例、下腿4例であった。校内ではスポーツ由来が17例であり、内訳としてサッカー3、トランポリン2、ドッチボール2、かけっこ2、野球1、バレーボール1、ミニバスケット1、大縄とび1、新体操1、鉄棒1、跳び箱1、うんてい1であった。学校外では交通外傷が19例と大半を占めていた。代表症例を供覧する。

【結果】1例のみ(大腿骨内側骨折G-IV型)が偽関節となり骨切り術を行ったが他の症例は全例骨癒合が得られ変形治癒等は起こしていない。

【総括】校内にてスポーツにより、骨傷を起こす事もあり、適切な指導下・管理下にて行うことが大切である。学童期における四肢外傷(特に整復を要する骨折)は将来的に大きく変形する事があり、特に関節近傍の骨折は早期に正しい解剖学的位置に戻すべきである。

P1-14.

腰部脊柱管狭窄症の根性疼痛と腰仙椎アライメント

(大学院三年・整形外科)

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【目的】腰部脊柱管狭窄症(以下LCS)は、加齢的要因に加えて馬尾症状などの神経症状が脊椎アライメントの変化をもたらすことが知られている。今回の研究目的は、腰部神経根症の神経症状が及ぼす腰仙椎の形態的特徴を検討することである。

【方法】2006年以降当科にて非固定除圧手術を行ったLCS50例、腰椎椎間板ヘルニア(以下LDH)40例、対照として正常群40例で、手術前と手術後6か月以降における全脊椎矢状面アライメントを比較した。方法は、立位X線にて頸椎C7よりplumblineとS1椎体上の後上隅角までの距離(以下SVA)、腰椎L1上辺と腰椎L5上辺の延長線のなす角度、腰椎前弯角(以下LLA)、白蓋中央とS1椎体上の後上隅群角のなす角度、骨盤傾斜角(以下PA)について検討を行った。

【結果】術前の脊椎アライメントは、根型LCS、