

4-8.

Urinary charged metabolite profiling of colorectal polyps using capillary electrophoresis-mass spectrometry

(社会人大学院博士課程3年消化器・小児外科学分野、東京医科大学 消化器・小児外科学分野)

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Colorectal cancer (CRC) has increasing global prevalence and poor prognostic outcome. The adenoma-carcinoma sequence theory in CRC is well-known and serves as a model for oncogenes and suppressor genes. In most cases, if it is found at the colorectal polyp (P), it can be cured by endoscopic resection. Therefore, early detection and treatment at P stage, which is a precancerous condition, is very important in preventing CRC. However, until now, there have only been a few studies on P because it is classified as a benign disease.

In addition, it is desirable that the consultation rate is high for early detection of CRC and P. In order to increase the screening test rate, it is necessary to develop a simpler screening test method with high sensitivity and specificity for CRC and P. Urine samples can be collected non-invasively and are excellent biomarkers containing various metabolites. By identifying metabolites with high sensitivity and specificity to CRC and P, it may become a screening test to replace the fecal occult blood test in the future.

To understand the metabolomic profiles of CRC or P and healthy controls (HC), we conducted metabolomic profiling of urinary samples. Capillary electrophoresis-mass spectrometry (CE-MS) was used to quantify hydrophilic metabolites in subjects with CRC or P, and HC. The identified and quantified metabolites included metabolites of glycolysis, TCA cycle, amino acids, urea cycle, and polyamine pathways. In particular, it contained many metabolites predominantly P and CRC in the histidine cycle compared to HC.

5-1.

Relationship between thoracic alignment in standing posture and internal ankle moment of frontal plane during gait

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【Purpose】 The internal ankle moment of frontal plane (IAMF) is the activity of the varus and valgus muscles of the ankle joint and contributes to lateral stability of gait. We assume that the IAMF is associated with thoracic alignment, which includes the center of mass of the upper body, because the IAMF is affected by the position of the center of gravity. In this study, we investigated the effect of thoracic alignment on the IAMF during gait.

【Methods】 Twenty-two healthy adult males were subjected to the following measurements using a 3D motion analyzer and force plates. The lateral thoracic deviation and the asymmetrical ratio (R/L) of the upper and lower thoracic shapes were measured in the standing position. The thoracic shape was calculated as the anteroposterior diameter of the thorax. The peak values of the valgus moment and varus moment of the ankle joint during the left and right stance phase were measured during the natural gait. For statistical processing, a 95% confidence interval was calculated from the thoracic data, and the IAMF was compared left and right. The asymmetry (R-L) of the IAMF was calculated, and the

correlation with the thoracic data was examined.

【Results】 The thorax was deviated to the left, and the upper and lower thoracic shapes were asymmetrical. The peak valgus moment was significantly larger on the right than on the left. The peak varus moment was significantly larger on the left than on the right. The asymmetrical ratio of the lower thoracic shape was positively correlated with asymmetry in valgus moment, and negatively correlated with asymmetry in varus moment.

【Discussion】 These results suggest that the larger the asymmetry of the lower thoracic shape, the larger the valgus moment of the right ankle and the varus moment of the left ankle are, relative to the contralateral side, respectively.

5-2.

Clinical appearance of stenosing flexor tenosynovitis of the finger with PIP joint fixed flexion deformity

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【Background】 Open release of the A1 pulley is a widely known procedure for the treatment of stenosing tenosynovitis of the finger (Trigger finger), and the postoperative results are usually excellent. However, in some cases symptomatic fixed flexion deformity of the proximal interphalangeal (PIP) joint remains after the operation. We have performed ulnar slip superficialis tendon resection (USSR) and obtained relatively favorable results. The clinical appearance of patients undergoing USSR for Trigger finger with PIP joint fixed flexion deformity is reported.

【Methods】 In this study, 45 Trigger fingers with PIP joint fixed flexion deformity from 41 patients (23 fingers of 21 women and 22 fingers of 20 men, with average age of 69.4 years) who were treated by USSR were retrospectively reviewed. The mean follow-up period was 12 months. We compared the pre and postoperative clinical findings (grip strength, PIP joint flexion and extension angle, DASH scores). In addition, flexor

tendon and proximal phalanx axial area ratios at the levels of proximal 20%, 40%, and 60% from the MP joint were calculated from the CT images and compared with age and sex matched control.

【Results】 Grip strength, PIP joint flexion and extension angles, and DASH score were significantly improved after surgery (<0.05). On CT imaging, the preoperative tendon proximal phalanx axial area ratio was significantly larger than that of control at the level of proximal 20% from the PIP joint (<0.05), but at the level of proximal 40% and 60%, no differences were seen.

【Conclusion】 Larger tendon proximal phalanx axial area ratio at the level of proximal 20% may relate to the cause of the fixed flexion deformity of the Trigger finger.

USSR is considered to be a useful method to treat Trigger finger with PIP joint fixed flexion deformity.

5-3.

Three cases of pressure injuries developed in ACL reconstruction surgery with low risk of pressure injuries

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【Aim】 Length of 6 hours more surgery is the highest risk of developing pressure injury (PI) in OR. We experienced that three PI cases in anterior cruciate ligament (ACL) reconstruction surgery, which is considered to have a low risk of PIs. We report the preventive measures against PIs in ACL and their efficacy after experiencing surgery with PIs.

【Case】 The ages of the three cases were 14, 20, 45 years-old, the BMI was 16.5, 21.6, 19.7, and the length of surgery was 165, 194, 205 minutes (respectively). At the end of surgery, redness was observed in the buttocks on the ACL surgery side in all three cases.

【Discussion】 The cause of PIs may be related to maceration (microclimate) and shear force. In ACL, an arthroscope is used to flex the knee position and widen