ERRATUM

**Paratenon of the cruciate ligaments of the knee: a macroscopic and histological study of human fetuses**

**To the Editor,**

I am writing this mail with the error in our published article.

In the article by Kim JH, Sugai N, Suzuki D, Murakami G, Abe H, Rodríguez-Vázquez JF, Yamamoto M. Paratenon of the cruciate ligaments of the knee: a macroscopic and histological study of human fetuses. Folia Morphol 2022;81(1):134–143 (DOI: 10.5603/FM.a2021.0003.), the following errors should be corrected: in the legends and figure letterings to figures 1-6 should be added and changed because of a misinterpretation of figures. Throughout the legends and figures letterings of Fig.1ABCD, Fig.2 BC, Fig.3, Fig.4 ABDEF, Fig.5CDE and Fig.6, the ACL (anterior cruciate ligament) and PCL (posterior cruciate ligament) for identification of the cruciate ligaments should be reversed. And, in the figure legend and figure lettering of Fig. 1E, lateral condyle should change to medial condyle.

However, these errors are not relevant to the major contents of this paper. The authors apologize for the errors and inconveniences.

After our communication with the Editors, we have reanalyzed the data and have published a new report Paratenon of the cruciate ligaments of the knee: a macroscopic and histological study of human fetuses. Folia Morphol 2024; DOI: 10.5603/fm.98952.

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The correction in figure legends should be:

**Figure 1. Anterior macroscopic views of the knees of three near-term fetuses, with the patellas, infrapatellar fat pads, and patellar tendons removed.**

Panels A and B (left knee): fetus of 305 mm CRL, approximately 36 weeks GA; panels C and D (left knee): fetus of 286 mm CRL, approximately 33 weeks GA; panels E–G (right knee): fetus of 276 mm CRL, approximately 32 weeks GA. When the knee joint was opened, the infrapatellar fat pad was cut at the femoral attachment if present (IFP cut, panel A). The ACL was entirely covered by a thick capsule-like paratenon (panel B), and the paratenon likely contained a feather-like structure (panel D). Panel E shows a rare example of a thin paratenon along the anterior ligament. The PCL accompanied a band-like tissue (ligamentum mucosum, panel F). Both ligaments were almost in parallel when the tibia was twisted (panel G). M, meniscus. Scale bar in panel A (5 mm) refers to panels A–D; scale bar in panel E (5 mm) refers to panels E–G.

**Figure 2. Sagittal sections of interzone mesenchymal tissues of the knee joints of two midterm fetuses.**

Panel A: fetus of 35 mm CRL, approximately 8 weeks GA; panels B and C: fetus of 46 mm CRL, approximately 9 weeks GA. At 8 weeks, the PCL was embedded in interzone mesenchymal tissue (arrows in panel A) of the knee joint. The patella was present in more medial sections. At 9 weeks, the PCL was embedded in the interzone tissue remnant (stars in panel B) along almost the entire course. In contrast, along the ACL the loose tissue (star in panel C) was restricted near the femur (F). The infrapatellar fat pad was not developed (arrowheads in panel B). FI, fibula; M, meniscus; P, patella; PT, patellar tendon; T tibia. Scale bar in panel A (1 mm) refers to all panels.

**Figure 3. Sagittal sections of the initial differentiation of the paratenon along the cruciate ligaments of the knees of two near-term fetuses.**

Panels A and B: fetus of 270 mm CRL, approximately 32 weeks GA; panels C and D: fetus of 282 mm CRL, approximately 33 weeks GA. Panels B and D provide magnified views of the delineated regions in panels A and C, respectively. An expanding joint space in the posterior side of the PCL was surrounded by synovial fold-like tissues (triangles in panel B) and by ligament-like tight tissues (stars in panel B). The latter appear to be divided from the posterior ligament because of tears (arrows in panel B). In contrast, a loose tissue (triangles in panel D), corresponding to an interzone tissue remnant (Fig. 2C), extended inferiorly along the ACL. The infrapatellar fat pad (IFP) was connected to the femur (arrowhead in panel C). F, femur; M, meniscus; P, patella; PT, patellar tendon; T tibia. Scale bar in panel A (1 mm) refers to panels A and C; scale bar in panel B (1 mm) refers to panels B and D.

**Figure 4. Sagittal sections of the fibro-adipose tissues of the paratenon at the knee in a near-term fetus.**

All panels: fetus of 320 mm CRL, approximately 39 weeks GA. Panel A (most medial), panel D, and panel E (most lateral) show the ACL and PCL at low magnification. The PCL is separated from the infrapatellar fat pad (IFP) by a synovial plica (arrows in panel A). Panels B, C, and F provide magnified views of the delineated regions in panels A and B, and Figure 5 provides magnified views of the delineated regions in panels B and E. The femoral attachment of the posterior ligament (panel B) was sandwiched by loose tissues or paratenons. Panel C shows the infrapatellar fat pad, which consists of fatty tissues in a mesh of fibrous bands (arrows; <0.1 mm thick). Some fat pads contained thick fiber bundles (arrowhead; >0.3 mm thick). Panel F shows a site near the crossing of the cruciate ligaments, in which the arteries run near the ligaments. A cavity along the posterior ligament contained remnant fibers (arrows in panel F). F, femur; P, patella; PT, patellar tendon; T tibia. Scale bar in panel A (1 mm) refers to panels A, D and E; scale bar in panel B (1 mm) refers to panels B, C and F.

**Figure 5. Higher magnification views of the fibro-adipose paratenon and synovium in a near-term fetus.**

Images are from delineated regions in panels B, D and E of Figure 4. Cuboidal and flat cells were mixed, and lined a surface of the infrapatellar fat pad (IFP, panel A) and a synovial plica along the anterior ligament (panel B). Along the anterior aspect of the PCL (panel C), there was a thick and long cavity without lining cells (stars) and two thin cavities with a lining of flat cells (triangles). At a site below panel C, a cavity in panel D was lined by flat cells (arrows) but was exposed to PCL fibers without lining (arrowheads). There were also small spaces with unclear lining cells (stars in panel D). Near the tibial attachment of the PCL (panel E), a cavity (stars) contained multiple remnant fibers. There was a cuboidal cell lining of the paratenon near the femoral attachment of the anterior ligament (arrows in panel F). In contrast, there were fragmented tissues without lining cells (arrowheads in panel G) near the femoral attachment of the ACL. The ACL had a short synovial plica near the tibia (panel H). Scale bar in panel A (1 mm) refers to all panels.

**Figure 6. Sagittal sections of a vein-rich paratenon at the knee in a near-term fetus (280 mm CRL, approximately 33 weeks GA).**

Panels A–D show the ACL and PCL at low magnification, and panel A is the most medial view. Delineated areas in these panels are shown in panels E–G and Figure 7. The tibial attachment of the anterior ligament (panel E) contains abundant veins. In the anterior side of the posterior ligament (panel F), veins in the paratenon appear to be broken or degenerated (see also Fig. 7B). Near the crossing of the ACL and PCL (panel G), veins with irregular shapes form a plexus (see also Fig. 7C–E). F, femur; IFP, infrapatellar fat pad; M, meniscus; T tibia. Scale bar in panel A (1 mm) refers to panels A–D; scale bar in panel E (1 mm) refers to panels E–G.