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## Analysis of renal tumors by histomorphology, IHC and FISH

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**Objectives:** Accurate RCC classification has important implications for prognostic risk stratification, targeted therapeutics selection, and identification for genetic testing. Both translocation renal cell carcinoma TFE 3 and SDH-deficient renal cell carcinoma may occur in young patients, and their morphology may overlap with those of other types of renal cell carcinoma.

**Methods:** This was a retrospective study made on renal cell carcinoma diagnosed in the Pathology Department of Command hospital Chandimandir on Radical nephrectomy specimens from patients. In this study, we analyzed 12 renal cell carcinomas. These were processed by the classical technique of formalin fixation and paraffin embedding, hematoxylin-eosin staining. The clinicopathologic features including sex, age, tumor size, histologic subtype, growth pattern, nuclear grade, tumor stages, resection margins status, tumor necrosis, and microvascular invasion were evaluated. Histologic subtypes were classified based upon 2016 WHO classification. Immunohistochemical analysis was performed on all cases and TFE3 break-apart FISH and SDHB Mutation Detection was outsourced.

**Results:** Our study consisted out of 12 consecutive RCCs. The clear cell RCCs variant was seen in nine cases and three renal cell carcinomas with positive TFE3 staining and negative SDHB staining. The patients two males and one female ranged in age from 19 to 45 years.

**Conclusions:** Coexistence of TFE3 translocation and SDHB mutation in renal cell carcinomas play a role in tumorigenesis, genomic instability, tumor progression and render aggressive features.

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