Renal cell carcinoma (RCC) is a relatively uncommon entity in younger patients. RCC typically presents in older patients, with the majority of tumors presenting in the fifth to seventh decades of life (median age of diagnosis: 66 years). The incidence of all RCCs is gradually increasing, and diagnosis of the disease is occurring at earlier stages due to the availability of frequent general health screenings and increasing use of ultrasonographic and computed tomographic (CT) modalities. Although overall incidence is increasing, the low frequency of tumors in this younger population has led to a paucity of definitive literature regarding specific clinicopathologic presentation, disease progression, prognosis and survival. The empirical evidence is limited, but it has been postulated that RCCs in younger patients may represent a distinct clinicopathologic disease state with different disease progression and survival rates. The aim of this study was to evaluate the clinicopathologic characteristics of RCC in younger patients in order to assess their effects on clinical progression and subsequent outcomes.

RESULTS

A total of 102 cases of RCC in patients aged 45 years and younger (63 males, 39 females) were reviewed on all cases. Gross findings were obtained from pathology reports. Follow-up data was obtained from the clinical database. We identified a total of 102 cases of RCC in patients aged 45 years and younger (63 males, 39 females). Age range: 3-45 years, median age: 40 years. Median tumor size: 3.7 cm (range: 0.5-25 cm). Laterality of tumor was evenly split between right and left. Histologic types: 58 clear cell (CRCC), 24 papillary (PRCC), 11 chromophobe (ChRCC), 5 translocation-associated (TxRCC), 2 multilocular cystic (MCRC), 1 medullary (MRCC) and 1 mixed. Sixty-six patients underwent radical resections, 33 had partial resections while three had percutaneous needle biopsies. Tumor was unicentric in 94 cases, and multifocal in 11 cases. Approximately 59% of the tumors demonstrated Fuhrman nuclear grade 2. Pathologic stage at diagnosis: 94 pT1a, 17 pT1b, 14 pT2a, 5 pT2b, 9 pT3a and 1 pT3b. At the time of diagnosis, lymph node involvement, renal sinus invasion, main renal vein invasion, perinephric fat invasion and microvascular angiolymphatic invasion were identified in 5, 5, 5, 9, and 11 cases, respectively. Microscopic coagulative necrosis was identified in 33 cases, while sarcomatoid differentiation was present in 7 cases. Distal metastasis was present in 8 cases. Clinical outcome data: 4 alive with disease, 57 alive without disease, 8 dead of disease (10 months average survival, 7 months median survival, 5 male, 3 female). Clinical outcomes: 94 out of 102 cases had long-term follow-up data present in our institution (median survival time of 7 months and the mean survival time was 10 months).

CONCLUSIONS

The clinicopathologic course of renal cell carcinoma in younger patients may represent a distinct entity in comparison with the course in older patients. Although uncommon in children and young adults, RCC is predominantly clear cell type, occurs more commonly in males and mostly has an indolent course. Clear cell and translocation-associated subtypes account for the clinically aggressive cases.

REFERENCES

1. Tyczkowski K, et al. Renal Cell Carcinoma in Adults 40 Years Old or Less: Young Age is an Independent Prognostic Factor for Cancer-Specific Survival. Euro Urol, 2007;51:880-887.