



Trend and characteristics of incidental renal masses discovered at time of autopsy



Claps F¹, Shafiei V², Morreale C¹, Boltri M¹, Migliozi F¹, Di Marco L¹, Ongaro L¹, Pavan N¹, Rizzo M¹, Liguori G¹, Bussani R², Trombetta C¹

¹ - University of Trieste, Urology Clinic, Department of Medicine, Surgery and Health Sciences, Trieste, Italy

² - University of Trieste, Institute of Pathology, Department of Medicine, Surgery and Health Sciences, Trieste, Italy

INTRODUCTION AND OBJECTIVES

Renal tumor is the seventh most common malignancy and it causes more than 140,000 deaths per year¹. Renal cell carcinoma (RCC) comprises more than 90% of such malignancies². Some of the most common risk factors of the disease such as cigarette smoking, obesity and hypertension are still highly prevalent in western countries which could lead to the increased rate of RCC³. Doubtless, advances in imaging technology such as abdominal ultrasounds, computed tomography (CT) and magnetic resonance (MRI) are playing an important role in the diagnosis of renal masses (RM) that are increasing over time and so of renal cell carcinoma (RCC) before the presence of clinical symptoms⁴. This aspect has prompted interest in active surveillance (AS) as a treatment option for the small masses, especially if supported by an imaging-guided biopsy that can characterize the tumor, that most likely will not contribute to cancer specific mortality⁵. To the best of our knowledge, contemporary data evaluating the temporal trend of pathological characteristics and the relationship with cancer-related death of the incidental RM are not available. The aim of this study was to analyze incidence trend, changes in clinical characteristics, pathological features and cancer-related death of RM incidentally discovered at time of autopsy in a long period of time.

MATERIALS AND METHODS

Data were retrieved from the autopsy register of the Pathology Department of a single tertiary referral center from 15086 consecutive autopsies performed between January 2004 and December 2017. Patients with previous history of primary RCC and patient with a kidney metastatic involvement from other tumors were excluded from this study.

RESULTS

A total of 15086 consecutive autopsies were performed at our Institute. 461 RM were found of which 159 were secondary lesions and 118 already had a diagnosis of renal neoplasm. Overall after excluding these we obtained a study population of 184 (1,22%) incidental RM. Benign and malignant lesions were respectively 32(17,4%) and 152(82,6%). The mean age at death was 82 years (SD 11,2) and the majority of patients were female (56,5%). Histologically were oncocytoma 13(7,1%), angiomyolipoma 13(7,1%), papillary adenoma 4(2,2%), cystic nephroma 3(1,6%), metanephric tumor 2(1,1%), clear-cell RCC 136 (73,9%) in which occurred 2(1,5%) sarcomatoid variant, papillary RCC 2(1,1%), chromophobe RCC 5(2,7%), carcinoma of the collecting ducts of Bellini 5(2,7%), nephroblastoma 1(0,5%). Considering the malignancies, pathological stage was: pT1 126(80,3%), pT2 10(6,4%), pT3 16(10,2%) and pT4 5(3,2%). In 16(10,2%) cases these were the cause of death. Temporal trend of incidence of RM and RCC decreased significantly over the years ($p=0,01$ and $p=0,01$ respectively). While the average age at death, sex and the distribution of the different histotypes remained constant over the time, RM found in the last years are increasingly smaller ($p=0,04$) and only in one case in the last seven years RM was the cause of the patient's death.

Image 1. Temporal trend of incidental RM found at time of autopsy

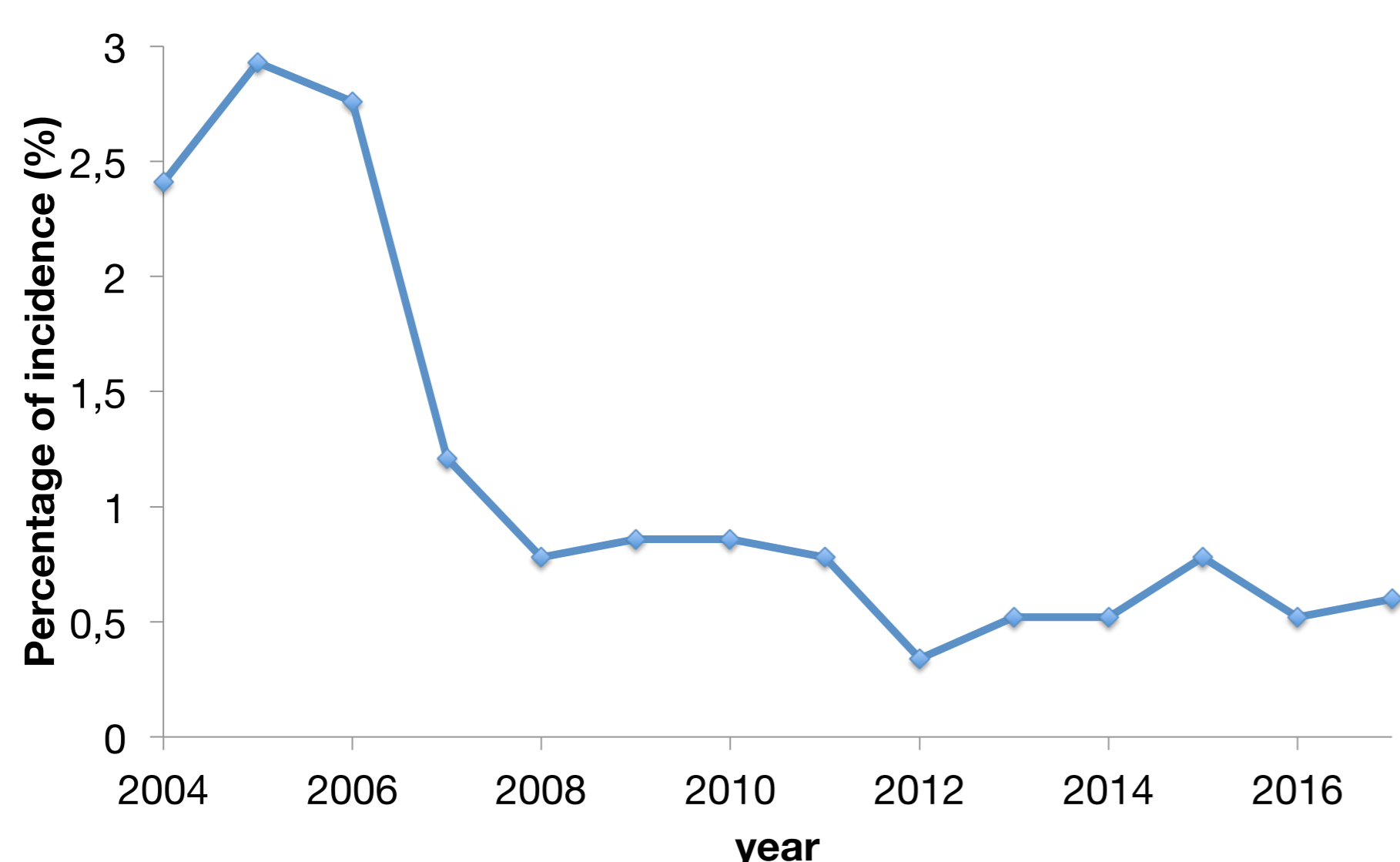


Image 2. Differences and trend of incidental RM found at time of autopsy based on gender

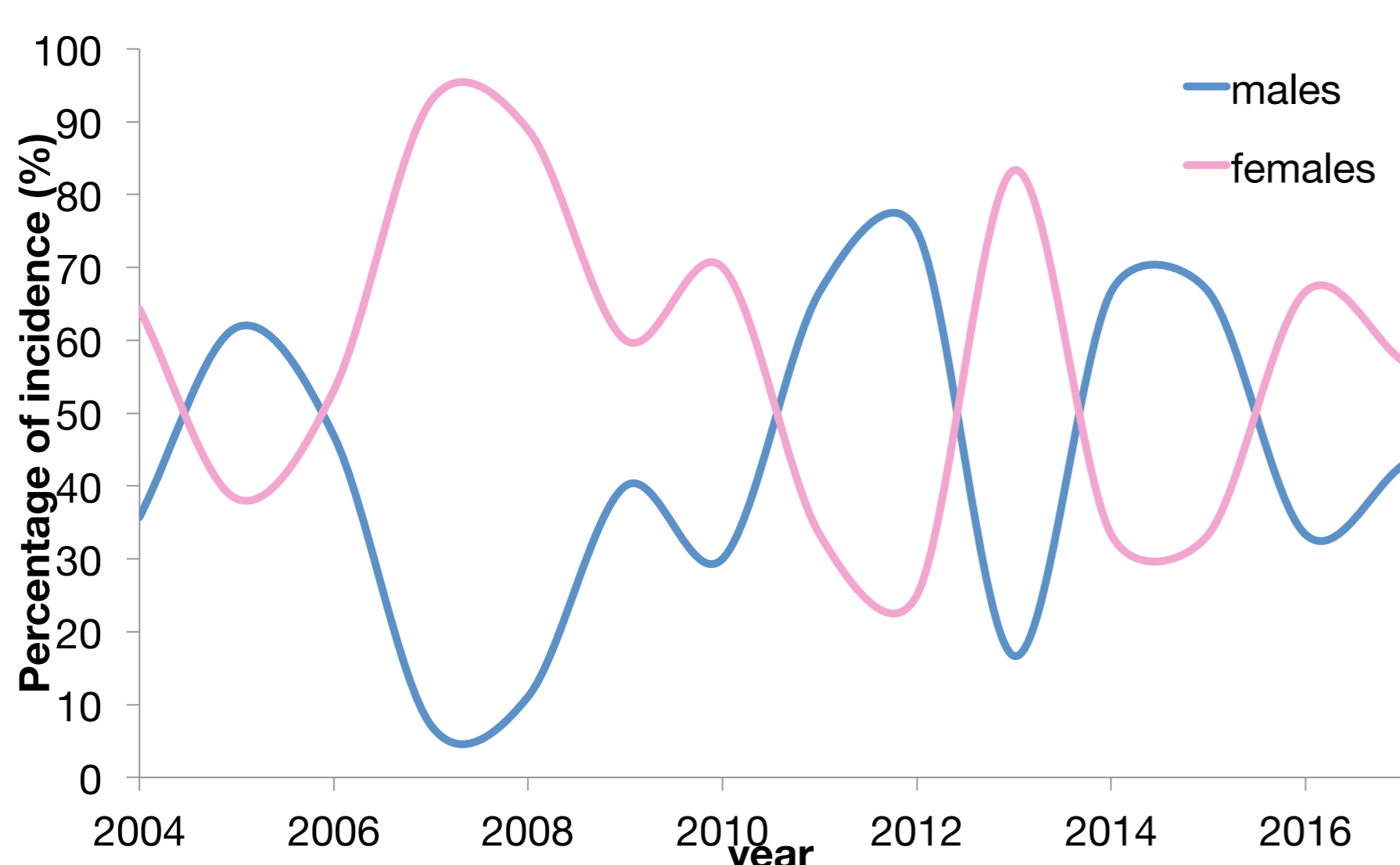


Table 1. Clinical and pathological features of population study

	Overall	Percentage (%)
n. patients	184	1.22
Median age at autopsy (±SD)	84 (30±102)	
Sex		
male	80	43.5
female	104	56.5
Renal neoplasm		
Oncocytoma	13	7.1
Angiomyolipoma	13	7.1
Papillary adenoma	4	2.2
Cystic nephroma	3	1.6
Metanephric tumor	2	1.1
Clear-cell RCC	136	73.9
Papillary RCC	2	1.1
Chromophobe RCC	5	2.7
Carcinoma of the collecting ducts of Bellini	5	2.7
Nephroblastoma	1	0.5
Sarcomatoid variant	2	1.3
pT stage		
T1(a,b)	126	80.2
T2(a,b)	10	6.4
T3(a,b,c)	16	10.2
T4	5	3.2
pN stage		
N0	143	91.1
N+	14	8.9
pM stage		
M0	168	91.3
M+	16	8.7
Cancer-related death		
no	141	89.8
yes	16	10.2

Table 2. Differences in distribution of RM and its characteristics according to the temporal trend

Characteristics of the study cohorts according to the temporal trend	2004-2010		2011-2017		p
	n.patients	2004-2010	2011-2017	p	
n.patients	137	47			
Age at autopsy					0.79
Median (±SD)	81.8(±11.3)	82.5(±9.4)			
Gender					0.12
Male	55	25			
Female	82	22			
Renal neoplasm					0.17
Oncocytoma	8	5			
Angiomyolipoma	7	6			
Papillary adenoma	3	1			
Cystic nephroma	3	0			
Metanephric tumor	2	0			
Clear-cell RCC	103	33			
Papillary RCC	2	0			
Chromophobe RCC	4	1			
Carcinoma of the collecting ducts of Bellini	4	1			
Nephroblastoma	1	0			
pT stage					0.04
T1(a,b)	93	34			
T2(a,b)	9	0			
T3(a,b,c)	15	1			
T4	5	0			
pN stage					0.15
N0	109	34			
N+	13	1			
pM stage					0.15
M0	109	34			
M+	13	1			
Cancer-related death					0.1
no	107	34			
yes	15	1			

CONCLUSIONS

The autopsy finding of incidental RM is decreasing. Although the distribution of the different kidney tumor histotypes appears constant, the mean size of the lesions that are incidentally identified at autopsy are increasingly smaller and more harmless. The incidental finding of RM is nowadays more common using the modern imaging techniques.

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Francesco Claps, MD
claps.francesco@gmail.com
Urological Clinic
Department of Medicine, Surgery and Health Sciences
University of Trieste - Trieste (Italy)



@FraClaps
@UrologiaTrieste