

# OUTCOMES OF BOSNIAK CLASSIFICATION VERSION 2019 CLASS IIF CYSTIC RENAL MASSES. A TERTIARY CENTRE EXPERIENCE



Tarik A. Rahmatullah<sup>1</sup>, Safiyah A. Aloufi<sup>2</sup>, Muath Marghalani<sup>1</sup>, Abdullah M. AlZahrani<sup>1</sup>, Fahad Elyahya<sup>1</sup>, Ali M. Moshibah<sup>3</sup>, Badr Al Mutairi<sup>1</sup>



<sup>1</sup>Department of Medical Imaging, Ministry of National Guard Health Affairs, King Abdulaziz Medical City, Riyadh, Saudi Arabia.

<sup>2</sup>King Abdulaziz Specialist Hospital, Taif Health Cluster, Ministry of Health, Taif, Saudi Arabia.

<sup>3</sup>King Khalid University Medical City, Abha, Saudi Arabia.

## ABSTRACT

**Background:** The recommended follow-up for Bosniak IIF renal masses includes imaging at 6 months, 12 months, and then annually for 5 years. These suggested follow-up intervals for class IIF masses are based on expert opinion. Successive studies indicate that most class IIF masses have low malignant potential, and those identified as malignant tend to exhibit slow biological progression. Consequently, the necessity of early imaging follow-up at 6 months remains uncertain.

**Objectives:** To investigate the frequency and timing of upgrade and malignancy rate on follow-up imaging for class IIF masses. These observations may be useful for the development of future management guidelines and lengthening the initial follow-up period.

**Method:** This retrospective study comprised 41 localized class IIF masses identified between January 2019 and December 2023. Patients underwent both an initial and at least one subsequent renal-mass protocol contrast-enhanced CT or MRI examination. Two radiologists evaluated the masses at all follow-up intervals to classify them as either stable (remaining as localized class IIF) or upgraded (classified as class III or IV or showing solid components). Discrepancies were resolved by a third radiologist. The incidence rate of upgrade was calculated, and the median time to upgrade and histopathologic outcomes were assessed for masses that underwent resection.

**Results:** Out of 41 masses only 12.19% (N= 5) were upgraded to Bosniak III (9.8%) and IV (2.4%). The majority of masses (85.4%) remained stable in their Bosniak class. The minimum time of progression was 15.5 months, whereas the median progression time was 34 months.

The average age of the patients was 63 years, with a notable variability of 16 years. The gender distribution showed a slightly higher representation of males (58.5%) compared to females (41.5%).

**Copyright:** © 2024 The Author(s). This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

eISSN: 1658-8959



In terms of mass characterization, the median size of the masses was 3 cm, with a considerable range from 6 to 2 cm. A majority of the masses exhibited many thin septa (68.3%), while a significant proportion also showed minimally thickened septa or wall (31.7%). Regarding the location of the masses, there was a slight predominance of masses in the left kidney (61.0%) compared to the right kidney (39.0%).

In terms of management, a large majority of the masses (85.4%) were managed through follow-up, indicating a conservative approach in the initial management of these lesions. However, a notable proportion of masses underwent surgical intervention (N=5), with 7.3% undergoing partial nephrectomy, 4.9% undergoing total nephrectomy and 2.4% underwent embolization.

Among the resected masses (N = 5), four were malignant, the distribution of malignancy types varied. The majority (50%) were classified as clear cell carcinoma, while 25% each were multilocular cystic tumors with low malignant potential and papillary carcinomas. All malignant masses were categorized as T1a, N0, M0.

**Conclusion:** Bosniak v2019 class IIF masses are unlikely to represent aggressive malignancy; only 12.19% were upgraded over time and never at initial 6 month follow up.

**Clinical Impact:** The recommended initial 6-month follow-up imaging examination for class IIF masses warrants re-evaluation.