Section: Radio-Diagnosis

Original Research Article

COMPUTED TOMOGRAPHY EVALUATION OF SUSPECTED ADRENAL MASSES: A RETROSPECTIVE STUDY

Rashitha Raj[1], Gautam Muthu[2], Javaji Raviprasad[3]

[1]Postgraduate, Department of Radio-Diagnosis, Rajarajeshwari Medical College and Hospital, Bengaluru, India.
[2]Professor and Head, Department of Radio-Diagnosis, Rajarajeshwari Medical College and Hospital, Bengaluru, India.
[3]Professor, Department of Radio-Diagnosis, Rajarajeshwari Medical College and Hospital, Bengaluru, India.

Received : 06/01/2026
Received in revised form : 10/02/2026
Accepted : 27/02/2026

Corresponding Author:
Dr. Rashitha Raj,
Postgraduate, Department of Radio-diagnosis, Rajarajeshwari medical college and hospital, Bengaluru, India.
Email: rashitharaj14@gmail.com

DOI: 10.70034/ijmedph.2026.1.380

Source of Support: Nil,
Conflict of Interest: None declared

Int J Med Pub Health
2026; 16 (1); 2191-2196

ABSTRACT

Background: Adrenal masses are increasingly detected on computed tomography (CT) and accurate characterization is essential to distinguish benign lesions from hormonally active or malignant tumors and to guide appropriate management. This study describes the CT spectrum of suspected adrenal masses in a tertiary-care hospital cohort and evaluates the utility of routine CT characterization parameters.

Materials and Methods: A retrospective observational study was performed in the Department of Radiodiagnosis at a Rajarajeshwari medical college and hospital, Bengaluru in India (January 2024–June 2025) after Institutional Ethics Committee approval with waiver of consent. Consecutive patients undergoing CT for suspected adrenal mass with archived images and reports were included (n=40). Lesions were assessed for laterality, number, size, margins, internal characteristics, macroscopic fat/calcification/necrosis-hemorrhage, invasion, vascular involvement, lymphadenopathy, and metastases. Region-of-interest attenuation was recorded on noncontrast CT where available; lesions with ≤10 HU were categorized as lipid-rich adenomas. Contrast-enhanced and delayed phases were analyzed when available, and washout was calculated when all phases were present. Descriptive statistics were reported.

Results: Most patients were aged 41–60 years (45%) with male predominance (60%). Common indications were prior detection on imaging/ultrasonography (35%) and known malignancy work-up (30%). Lesions were predominantly unilateral (right 45%, left 40%); bilateral lesions occurred in 15%. Most patients had a single lesion (85%). Lesion size was most commonly 2.0–3.9 cm (45%); 10% were ≥6 cm. Noncontrast attenuation was ≤10 HU in 45%, 11–20 HU in 25%, and >20 HU in 20%; noncontrast attenuation was unavailable in 10%. Contrast-enhanced datasets were available in 90% and delayed phase imaging in 50%. On CT impression, adenoma was most common (45%), followed by myelolipoma (12.5%), adrenal metastasis (15%), pheochromocytoma (10%), adrenocortical carcinoma (5%), cyst/pseudocyst (5%), hemorrhage (2.5%), and indeterminate lesions (5%).

Conclusion: In routine tertiary-care practice, most suspected adrenal masses demonstrate benign CT features, with adenoma as the predominant diagnosis. Systematic documentation of noncontrast attenuation and broader use of delayed washout imaging may reduce indeterminate interpretations and improve diagnostic confidence and care pathways.

Keywords: Adrenal Gland Neoplasms, Tomography X-Ray Computed, Incidental Findings, Adenoma, Diagnostic Imaging.

INTRODUCTION

Adrenal masses represent a clinically important and increasingly encountered diagnostic problem in contemporary practice. With the widespread availability and frequent utilization of cross-sectional imaging—particularly multidetector computed tomography (CT)—lesions of the adrenal gland are being detected at an unprecedented rate, both incidentally and during targeted evaluation for suspected adrenal pathology. The clinical impact of this trend is substantial: adrenal lesions may range from common benign entities that require no intervention to hormonally active tumors and aggressive malignancies that mandate timely diagnosis and definitive management. Importantly, adrenal disease often intersects with high-stakes clinical pathways—oncology staging, evaluation of refractory hypertension, and assessment of unexplained constitutional symptoms—where misclassification can lead either to unnecessary procedures and anxiety or to missed opportunities for curative treatment.[1]

CT has become the principal imaging modality for the detection and initial characterization of adrenal lesions because it provides excellent spatial resolution, rapid acquisition, and robust anatomic delineation.[2] CT protocols typically incorporate unenhanced imaging to identify features such as fat, hemorrhage, or necrosis followed by contrast-enhanced phases that help evaluate enhancement behavior and internal complexity; delayed imaging (commonly 10–15 minutes) enables washout assessment to improve differentiation between adenomas and non-adenomas. In routine clinical workflows, unenhanced attenuation values have particular relevance: lipid-rich adenomas classically demonstrate low attenuation, whereas lipid-poor adenomas and many malignant lesions may show overlapping attenuation characteristics. Consequently, CT interpretation often extends beyond qualitative assessment, integrating quantitative approaches such as attenuation thresholds, washout calculations, and—in select settings—pixel histogram analysis to detect negative-attenuation pixels suggestive of intracellular lipid.[3]

Despite these advances characterization of these lesions is not always straightforward. A substantial proportion of adrenal lesions are benign and non-functioning and the ability to confidently categorize such lesions on imaging can prevent unnecessary surgery, biopsy or repeated follow ups as a part of surveillance. Most adrenal masses detected on cross-sectional imaging represent non-hyperfunctioning adenomas. This is so even among patients with known malignancy, underscoring the importance of accurate imaging triage. At the same time, a minority of adrenal lesions remain indeterminate after standard CT evaluation. Lesions such as lipid-poor adenomas, pheochromocytomas, metastases, and adrenocortical carcinomas may show heterogeneous enhancement due to necrosis or hemorrhage. In these cases, imaging interpretation must be accurate, correlating lesion size, morphology, and enhancement characterstic. Additionally, patient's clinical context, including prior malignancy and biochemical evaluation must also be taken into account where relevant.[4]

Magnetic resonance imaging (MRI) further complements CT, especially when chemical shift imaging can demonstrate signal loss on out-of-phase sequences indicative of intracellular lipid, providing a problem-solving tool for lesions that do not meet definitive CT criteria. However, even MRI has recognized limitations due to overlap in signal behavior between certain adenomas and metastases.5 Consequently, real-world adrenal imaging practice often relies heavily on CT-based characterization pathways, incorporating unenhanced attenuation assessment, contrast enhancement patterns and finally delayed washout evaluation. These strategies are clinically meaningful because they aim to separate lesions likely to be benign—appropriate for conservative management—from those that are suspicious and may warrant further endocrine work-up, dedicated imaging, tissue diagnosis, or surgical referral.

Although imaging algorithms and characteristic patterns for many adrenal entities are well described, there remains a practical knowledge gap regarding how these imaging criteria perform when applied to routine hospital cohorts undergoing CT for suspected adrenal masses, rather than purely incidental findings or narrowly defined research populations. In particular, retrospective evaluations can clarify the local spectrum of adrenal pathology, the proportion of lesions that can be confidently characterized on CT alone, and the frequency with which indeterminate features occur in day-to-day practice. Against this background, the present retrospective study of 50 patients who underwent CT imaging for suspected adrenal masses is designed to systematically describe the CT appearance and distribution of adrenal lesions in our cohort.

MATERIALS AND METHODS

This retrospective observational study was conducted in the Department of Radiodiagnosis of a tertiary care teaching hospital in India. The study period was January 2024 to June 2025. During this interval, 40 consecutive patients who underwent CT imaging for suspected adrenal mass were identified from the institutional Radiology Information System (RIS) and Picture Archiving and Communication System (PACS). As this was a retrospective analysis the final sample size was 40 based on the number of consecutive cases meeting the eligibility criteria. All data were anonymized prior to analysis.

All CT examinations included in the study had already been performed as part of routine clinical care using the institution's standard CT acquisition protocols. For the purpose of this study, no additional imaging was performed and no alterations to scanning protocols were made. Only the available CT image datasets and radiology reports archived on PACS/RIS were evaluated. Where present in the archived studies, phase-wise datasets (non-contrast and contrast-enhanced phases including delayed images) were utilized for lesion characterization; studies were analyzed strictly based on the phases that were available for each patient in the stored dataset.

Data extraction was performed retrospectively using a structured proforma. Demographic and clinical details (age, sex, clinical indication for CT) were recorded from the radiology request forms and hospital records available in RIS. Imaging assessment was performed by reviewing the archived CT images along with the finalized radiology reports. The following lesion characteristics were documented: side (right, left or bilateral), maximum lesion diameter (largest axial dimension in cm), shape as well as margins (well-defined vs ill-defined), internal appearance (homogeneous vs heterogeneous). Additionally, presence or absence of macroscopic fat, calcification, necrosis or hemorrhage, local invasion, vascular encasement, and associated lymphadenopathy or presence of distant metastases were also noted.

Quantitative CT analysis was performed using region-of-interest (ROI) measurements on PACS. An ROI was placed within the most representative solid component of the lesion, avoiding visible necrosis, hemorrhage, calcification, and adjacent fat. Unenhanced attenuation (HU) was recorded wherever non-contrast images were available. For cases with archived contrast-enhanced phases, attenuation values were recorded on the available enhanced and delayed images and washout was calculated where all required phases were present. Lesions were categorized using established CT criteria: lipid-rich adenoma when unenhanced attenuation ≤10 HU; lesions with unenhanced attenuation >10 HU were evaluated as lipid-poor adenoma versus non-adenoma based on enhancement pattern and delayed washout where complete phase data were available. Lesions lacking adequate phase data for washout calculations were labelled indeterminate on CT and interpreted in conjunction with the original radiology impression.

Statistical analysis was performed using standard statistical software. Continuous variables were summarized as mean ± standard deviation or median (interquartile range) based on distribution, and categorical variables as frequency and percentage.

Inclusion Criteria

- Patients who underwent CT imaging for suspected adrenal mass between January 2024 and June 2025
- Archived CT images and final radiology report available in PACS for review
- CT study with adequate visualization of at least one adrenal gland and the reported lesion

Exclusion Criteria

- Studies with non-diagnostic image quality (e.g., severe artifacts) precluding lesion assessment
- Records with missing key imaging data (e.g., lesion not measurable/side not ascertainable) despite PACS review
- Lesions confirmed on review to be non-adrenal in origin (e.g., renal/retroperitoneal masses mimicking adrenal lesions)

RESULTS

Across the 40 patients evaluated, most were middle-aged, with the largest proportion in the 41–60-year group (18/40; 45%), and there was a male predominance (24/40; 60%). [Table 1]

Table 1: Age group and gender distribution (n = 40)

Variable	Number of cases (n)	Percentage (%)
Age group (years)		
≤40	10	25.0
41–60	18	45.0
>60	12	30.0
Gender		
Male	24	60.0
Female	16	40.0

The commonest reason for CT referral was detection of an adrenal lesion on prior Imaging or ultrasonography (14/40; 35%), followed by evaluation in patients with a known malignancy undergoing staging or follow-up (12/40; 30%). Clinical suspicion related to catecholamine excess constituted a smaller but relevant subset (6/40; 15%). [Table 2]

Table 2: Clinical indication for CT in studied cases (n = 40)

Indication	Number of cases (n)	Percentage %)
Incidental adrenal lesion on prior imaging/USG	14	35.0
Known malignancy / staging / follow-up	12	30.0
Hypertension / suspected pheochromocytoma	6	15.0
Cushingoid features / suspected cortisol excess	3	7.5
Abdominal pain / nonspecific symptoms	4	10.0
Others (e.g., weight loss/pyrexia work-up)	1	2.5

On imaging, lesions were more often unilateral than bilateral, with a slight right-sided predominance (right 18/40; 45%; left 16/40; 40%); bilateral lesions were seen in 6/40 (15%). Most patients had a single lesion (34/40; 85%). [Table 3]

Table 3: Analysis of Laterality and lesion number (n = 40)

Imaging variable	Number of cases (n)	Percentage (%)
Right adrenal lesion	18	45.0
Left adrenal lesion	16	40.0
Bilateral adrenal lesions	6	15.0
Single lesion	34	85.0
Multiple lesions	6	15.0

In terms of size, the majority of lesions measured 2.0–3.9 cm (18/40; 45%), while large lesions ≥6 cm accounted for 4/40 (10%). [Table 4]

Table 4: Estimation of Lesion size on CT (maximum diameter) (n = 40)

Size category	Number of cases (n)	Percentage (%)
<2.0 cm	10	25.0
2.0–3.9 cm	18	45.0
4.0–5.9 cm	8	20.0
≥6.0 cm	4	10.0

On non-contrast assessment, nearly half of the lesions demonstrated ≤10 HU attenuation (18/40; 45%), consistent with the lipid-rich adenoma range, while 8/40 (20%) had attenuation >20 HU. Unenhanced attenuation was not available/documented in 4/40 (10%). [Table 5, Figure 1]

Table 5: Unenhanced CT attenuation category (NCCT) (n = 40)

NCCT attenuation category	Number of cases (n)	Percentage (%)
≤10 HU	18	45.0
11–20 HU	10	25.0
>20 HU	8	20.0
NCCT attenuation not documented / NCCT not available	4	10.0

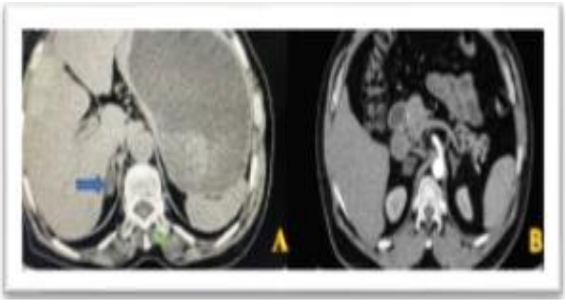

Figure 1: A) Non enhanced CT shows hypodense lesion (blue arrow) in the right adrenal gland. B) 50 year old male patient with hepatocellular carcinoma with right adrenal metastasis.

Contrast-enhanced datasets were available in 36/40 (90%), whereas delayed (washout) phase imaging was available in 20/40 (50%) (Table 6). Among cases with CECT, 26/36 (72.2%) showed no suspicious CT features, while 10/36 (27.8%) demonstrated at least one suspicious feature; metastases without nodal disease was the most frequent suspicious pattern (4/36; 11.1%). [Table 6]

Table 6: Contrast-enhanced CT phase availability, enhancement characteristics, washout assessment, and suspicious imaging signs (n = 40)

Variable	Number of cases (n)	Percentage (%)
Contrast phase availability		
CECT available	36	90.0
CECT not available	4	10.0
Delayed phase availability		
Delayed phase available (washout assessable)	20	50.0
Delayed phase not available	20	50.0
Overall suspicious feature status on CECT (only among CECT cases, n = 36)		
No suspicious features	26	72.2
Any suspicious feature present	10	27.8
Pattern of suspicious features (mutually exclusive, among CECT cases, n = 36)		
None	26	72.2
Lymphadenopathy only	2	5.6
Metastases only	4	11.1
Local invasion ± vascular involvement (without metastases)	2	5.6
Metastases + lymphadenopathy (with/without invasion)	2	5.6

On final CT-based impression, adenoma was the most common diagnosis (18/40; 45%). Malignant or potentially malignant lesions constituted a smaller subset, with adrenal metastases in 6/40 (15%) and imaging-suggestive adrenocortical carcinoma in 2/40 (5%). Pheochromocytoma was suggested on imaging in 4/40 (10%), while 2/40 (5%) remained indeterminate on CT. [Table 7]

Table 7: Final CT-based impression in cases of adrenal masses (n = 40)

CT-based impression	Number of cases (n)	Percentage (%)
Adenoma (benign-appearing)	18	45.0
Myelolipoma	5	12.5
Pheochromocytoma (imaging-suggestive)	4	10.0
Adrenal metastasis	6	15.0
Adrenocortical carcinoma (imaging-suggestive)	2	5.0
Cyst / pseudocyst	2	5.0
Adrenal hemorrhage	1	2.5
Indeterminate adrenal lesion	2	5.0

DISCUSSION

In this retrospective cohort of 40 patients undergoing CT for suspected adrenal masses, we found that lesions were most frequently encountered in middle age (45% in the 41–60-year group) with a male predominance (60%). This demographic pattern is broadly consistent with the real-world clinical spectrum of adrenal mass evaluation described in early CT-era observational work by Glazer et al6 and the larger clinical framing of adrenal incidentalomas by Kloos et al.[7] In these studies a substantial proportion of detected adrenal lesions were discovered during imaging performed for unrelated indications and cluster in mid-to-late adulthood. Our referral indications reinforce this pragmatic case-mix: over one-third were prompted by a prior detected lesion on ultrasonography or earlier imaging, while 30% were scanned in the context of known malignancy. Importantly, these "suspected mass" pathways differ from purely incidental cohorts because pre-test probability of malignancy and urgency of characterization are often higher, yet our final CT impressions still favoured benign diagnoses in substantial number of cases (adenoma 45% and myelolipoma 12.5%). This mirrors the central message emphasized across endocrine and radiology literature: the imaging challenge is less about detecting lesions than about confidently triaging them to avoid unnecessary biopsy or surgery while not missing clinically significant malignancy.

A key quantitative finding was that 45% of lesions demonstrated unenhanced attenuation ≤10 HU, a threshold widely used to identify lipid-rich adenomas, whereas 25% were 11–20 HU and 20% were >20 HU, with 10% lacking a documented noncontrast value. The performance and limitations of the ≤10 HU rule have been systematically evaluated by Boland et al who pooled CT literature and underscored the high specificity of low-attenuation criteria for adenoma characterization, while also acknowledging that a meaningful minority of adenomas are lipid-poor and therefore fall above this cutoff.[8] More recently, Kirsch et al revisited this issue using surgical-pathology cohorts and demonstrated that reliance on HU ≤10 alone can miss a notable proportion of benign adenomas, supporting the value of adjunct criteria (including washout) when attenuation is higher.[9] Our distribution—where more than half of lesions were >10 HU or lacked NCCT documentation—highlights a practical challenge in routine hospital workflows: a sizeable fraction of patients will require additional characterization beyond the simplest unenhanced attenuation threshold. This is especially relevant because we observed that delayed phase imaging (needed for washout assessment) was available in only 50% of cases, creating an "indeterminate by protocol" category that can persist even when lesions are likely benign.

Washout-based characterization remains central for lesions with unenhanced attenuation >10 HU, and our dataset illustrates both its clinical value and its real-world underutilization. Classic work by Korobkin et al defined the time–attenuation behavior of adenomas versus non-adenomas and established that adenomas tend to enhance rapidly and wash out contrast more quickly than malignant lesions.[10] Building on this foundation, Caoili et al showed that combining unenhanced CT with delayed enhanced imaging allows correct categorization of most adrenal masses as adenomas or non-adenomas, effectively operationalizing washout thresholds into a clinically deployable algorithm.[11] In our cohort, the limited availability of delayed images (20/40) likely contributed to the small but important proportion of lesions remaining indeterminate on CT (5%) and to dependence on qualitative "suspicious features" (invasion, lymphadenopathy, distant metastases) rather than complete quantitative washout calculations for decision-making. From a workflow standpoint, these findings argue for protocol standardization when an adrenal lesion is a primary question—particularly in the common 2.0–3.9 cm size range (45% in our study), where management hinges on confident benign characterization rather than size alone.

Patients with known malignancy comprised 30% of our referral indications, and this subgroup is where diagnostic stakes are highest, because misclassifying a metastasis as a benign adenoma can alter staging and treatment. In this context, observational outcomes reported by Hammarstedt et al are instructive: even among patients with a history of extra-adrenal cancer, many adrenal lesions are benign, with benignity strongly influenced by whether there is concurrent metastatic disease elsewhere.[12] Similarly, imaging-based series by

Schwartz et al (evaluating adrenal masses in patients with known malignancy) emphasize that malignancy status increases pre-test probability but does not negate the high baseline prevalence of benign lesions, reinforcing the need for rigorous imaging characterization rather than assumption-driven labelling.[13] In our cohort, adrenal metastases were suggested in 15% overall, while suspicious CT patterns among contrast studies (27.8%) were most often "metastases only" (11.1% of CECT cases). This aligns with oncologic practice where adrenal metastasis may occur without nodal disease, and it supports careful scrutiny for extra-adrenal metastatic deposits on the same examination. At the same time, the fact that most contrast studies showed no suspicious features (72.2%) echoes the literature that a large proportion of adrenal lesions in cancer patients remain benign, and therefore benefit from objective CT criteria (attenuation and/or washout) to prevent overstaging.

Finally, our diagnostic mix included lesion types with characteristic CT appearances that can either simplify or complicate interpretation: myelolipoma (12.5%), pheochromocytoma (10%), cyst/pseudocyst (5%), hemorrhage (2.5%) and imaging-suggestive adrenocortical carcinoma (5%). For pheochromocytoma, Blake et al emphasized its role as an "imaging chameleon," with variable attenuation and enhancement patterns that can overlap with adenoma or malignancy, underscoring why CT interpretation must be integrated with biochemical evaluation when clinical suspicion exists (as in our hypertension/suspected catecholamine excess subgroup, 15%).[14] In contrast, macroscopic fat is a powerful discriminator for myelolipoma, and Kenney et al correlated pathologic patterns with CT appearance, supporting the routine practice of confidently diagnosing myelolipoma when fat-density components are present—thereby avoiding unnecessary follow-up or intervention in most cases.[15] Our small number of imaging-suggestive adrenocortical carcinomas (5%) and the presence of large lesions ≥6 cm (10%) reiterate the importance of combining size, heterogeneity, margins, and invasive features with quantitative parameters; however, the limited delayed-phase coverage in our cohort highlights a modifiable systems issue. Overall, the study supports a pragmatic conclusion: in routine tertiary-care practice, CT scan characterize a substantial fraction of suspected adrenal masses as benign, but protocol completeness (particularly unenhanced attenuation documentation and availability of delayed washout imaging) materially influences the proportion of lesions that remain indeterminate and the confidence with which malignant disease can be excluded.

CONCLUSION

In this retrospective series of patients evaluated by CT for suspected adrenal masses, most lesions demonstrated imaging features which were consistent with benign pathology. Most commonly identified lesion was adrenal adenoma. Availability of unenhanced attenuation values enabled confident identification of lipid-rich. From the above findings it can be confidently concluded that standardized adrenal CT protocols improve diagnostic confidence and streamline management pathways.

REFERENCES

1. Jing Y, Hu J, Luo R, Mao Y, Luo Z, Zhang M, Yang J, Song Y, Feng Z, Wang Z, Cheng Q, Ma L, Yang Y, Zhong L, Du Z, Wang Y, Luo T, He W, Sun Y, Lv F, Li Q, Yang S. Prevalence and Characteristics of Adrenal Tumors in an Unselected Screening Population : A Cross-Sectional Study. Ann Intern Med. 2022 Oct;175(10):1383-1391. doi: 10.7326/M22-1619. Epub 2022 Sep 13. PMID: 36095315.
2. Barat M, Cottereau AS, Gaujoux S, Tenenbaum F, Sibony M, Bertherat J, Libé R, Gaillard M, Jouinot A, Assié G, Hoeffel C, Soyer P, Dohan A. Adrenal Mass Characterization in the Era of Quantitative Imaging: State of the Art. Cancers (Basel). 2022 Jan 23;14(3):569. doi: 10.3390/cancers14030569. PMID: 35158836; PMCID: PMC8833697.
3. Remer EM, Motta-Ramirez GA, Shepardson LB, Hamrahian AH, Herts BR. CT histogram analysis in pathologically proven adrenal masses. AJR Am J Roentgenol. 2006 Jul;187(1):191-6. doi: 10.2214/AJR.05.0179. PMID: 16794176.
4. Korobkin M, Francis IR. Imaging of adrenal masses. Urol Clin North Am. 1997 Aug;24(3):603-22. doi: 10.1016/s0094-0143(05)70404-3. PMID: 9275981.
5. Elsayes KM, Mukundan G, Narra VR, Lewis JS Jr, Shirkhoda A, Farooki A, Brown JJ. Adrenal masses: mr imaging features with pathologic correlation. Radiographics. 2004 Oct;24 Suppl 1:S73-86. doi: 10.1148/rg.24si045514. PMID: 15486251.
6. Glazer HS, Weyman PJ, Sagel SS, Levitt RG, McClennan BL. Nonfunctioning adrenal masses: incidental discovery on computed tomography. AJR Am J Roentgenol. 1982;139(1):81-85.
7. Kloos RT, Gross MD, Francis IR, Korobkin M, Shapiro B. Incidentally discovered adrenal masses. Endocr Rev. 1995;16(4):460-484.
8. Boland GW, Lee MJ, Gazelle GS, Halpern EF, McNicholas MMJ, Mueller PR. Characterization of adrenal masses using unenhanced CT: an analysis of the CT literature. AJR Am J Roentgenol. 1998;171(1):201-204.
9. Kirsch MJ, Kohli MW, Dedhia PH, et al. Utility of the 10 Hounsfield unit threshold for identifying adrenal adenomas: Can we improve? Am J Surg. 2020.
10. Korobkin M, Brodeur FJ, Francis IR, et al. CT time-attenuation washout curves of adrenal adenomas and nonadenomas. AJR Am J Roentgenol. 1998.
11. Caoili EM, Korobkin M, Francis IR, et al. Adrenal masses: characterization with combined unenhanced and delayed enhanced CT. Radiology. 2002;222(3):629-633.
12. Hammarstedt L, Muth A, Wängberg B, et al. Adrenal lesions in patients with extra-adrenal malignancy. Acta Oncol. 2012.
13. Schwartz LH, Panicek DM, Hricak H. Adrenal masses in patients with malignancy. Radiology. 1995.
14. Blake MA, Kalra MK, Maher MM, et al. Pheochromocytoma: an imaging chameleon. Radiographics. 2004.
15. Kenney PJ, Wagner BJ, Rao P, Heffess CS. Myelolipoma: CT and pathologic features. Radiology. 1998.