Iranian Journal of Radiology
Volume 21 · Issue 3 · e149360

OPEN PEER REVIEW

Effectiveness of Twin-Beam Dual-Energy Computed Tomography in Characterization of Solitary Pulmonary Nodules Larger Than 5 mm

Saim Turkoglu, Mesut Özgökçe

SUBMITTED	REVISED	ACCEPTED	DOI
19 Feb 2024	19 Jul 2024	23 Jul 2024	10.5812/iranjradiol-149360

About this report

This open peer review (OPR) report shows the public comments made on this article during peer review, by the reviewers, the associate editor and the editor-in-chief, for every revision round, together with the authors' replies. Comments appear only with the consent of the people who wrote them. Reviewers who chose to sign their report are named; the others are shown as "Referee". Comments are edited for language only, and confidential remarks to the editors are not included.

More about open peer review: brieflands.com/knowledgebase/opr

Contents

1 **Original submission** Referee 1, Referee 2, Referee 3, Editor-in-Chief 2
2 **Revision 1** Referee 1, Referee 2, Editor-in-Chief 5
Authors' reply to reviewers 6
Reviewer and editor comments 10
3 **Revision 2** Referee 1, Associate Editor, Referee 4, Editor-in-Chief 12
Authors' reply to reviewers 13
Reviewer and editor comments 15
4 **Revision 3** Editor-in-Chief 16
Authors' reply to reviewers 17
Reviewer and editor comments 25

1 Original submission

4 comments · 29 Jul 2024 – 1 Sep 2024

Referee 1 Reviewer

MAJOR REVISION 29 Jul 2024

Dear Authors,
Thank you for submitting your manuscript for review. After careful consideration, I believe that your work has the potential to contribute significantly to the field. However, I must recommend major revisions before it can be considered for publication. Below are several points that I encourage you to address in your next round of revisions:

Abstract
1. Background: The background should provide more context and rationale for the study. Currently, it lacks sufficient detail.
2. Objectives: The objectives need to be clearly articulated. The purpose is somewhat vague and could benefit from specificity.
3. Methods: The methods section should include detailed descriptions of the study design (cross-sectional), sampling methods, patient selection criteria, gold standards, data collection, and statistical analysis methods.
4. Results: While the results are presented, they could be enhanced with exact numbers and effect sizes for clarity.
5. Conclusion: The conclusion should directly address the research question and be firmly supported by the results, as it currently appears speculative.

Introduction
6. Lack of Background Context: The introduction should better explain the prevalence and impact of solitary pulmonary nodules in the general population.
7. Inadequate Problem Statement: The challenges of distinguishing between benign and malignant nodules need further elaboration, particularly regarding the limitations of current methods like FDG-PET and CT-guided biopsy.
8. Insufficient Justification for the Study: While DECT is mentioned, a detailed explanation of its superiority over existing methods is necessary.
9. Hypothesis/Objectives: The study aims should be explicitly stated to guide the reader.
10. Disjointed Sections: The section on "Twin-Beam Dual-Energy Computed Tomography" disrupts the narrative flow; consider integrating this information more cohesively.

Methods
11. Lack of Detail on Study Setting: Information regarding the geographic location and its potential influence on generalizability is missing.
12. Study Design: A clear description of the study design is needed, specifying whether it is cross-sectional.
13. Lack of Detail on Sampling Method: Clarification on patient recruitment and selection methods is essential for representativeness.
14. Absence of Sample Size Calculation: Discuss how the sample size was determined and whether a power analysis was conducted.
15. Unclear Definition of Exclusion Criteria: Justify the exclusion criteria and their implications for generalizability.
16. Insufficient Details on Inclusion and Exclusion Procedures: Provide information on how histopathological results or follow-up CT scans were reviewed for consistency.
17. No Information on Ethical Approval Process: Clarify the ethical considerations and how patient consent was obtained.

18. Lack of Details on Blinding: Include whether blinding techniques were used to reduce bias in image analysis.
19. No Description of Data Management: Discuss how data were collected, managed, and stored for integrity and confidentiality.
20. Statistical Tests Explanation: Provide a rationale for the statistical tests used and their relevance to the research question.

Results
21. Inadequate Presentation of Results: Consider using tables, charts, and graphs to enhance readability and understanding of the findings.
22. Valuable Reference: The paper titled "Dual-energy computed tomography iodine uptake in distinguishing between inflammatory and malignant pulmonary nodules" may serve as a beneficial template for refining your methods and results sections.

Discussion
23. Lack of Clear Structure: The discussion should be more organized to improve the clarity and flow of ideas.
24. Repetition of Information: Avoid redundancy to maintain conciseness and clarity.
25. Limited Integration of Previous Research: A deeper integration of existing literature would provide broader context and support for your discussion points.
26. Absence of Critical Analysis: Include a critical analysis of the results in relation to existing knowledge and theoretical frameworks for greater insight.
27. Inadequate Discussion of Limitations: Expand on the limitations of the study and their implications for validity and generalizability.
28. Missing Future Directions: Consider adding a section on future research directions or implications for clinical practice, research, or policy.

I appreciate your efforts in this important area of research and look forward to seeing your revisions.

Referee 2 Reviewer — MINOR REVISION — 30 Jul 2024

Thanks for the opportunity to review the manuscript entitled " Effectiveness of Twin-Beam Dual-Energy Computed Tomography in Characterization of Solitary Pulmonary", a well-written and well-designed study evaluating the use of DECT to discriminate between benign and malignant pulmonary nodules in 53 cases. The study addresses a novel and interesting subject and merits publication.
minor comments:
1. It is better to mention in the abstract whether the cases were pathologically proven or followed for 2 years.
2. Line 81 is vague regarding unknown metastasis; please clarify it.
3. It is better to provide at least 2 tables for the results (one for analysis and one for demographic features).
4. It is suggested to provide ROC curve analysis for sensitivity and specificity.

Referee 3 Reviewer — MAJOR REVISION — 13 Aug 2024

This article discusses a new radiological issue concerning an important clinical challenge in evaluating pulmonary nodules. As you explain, distinguishing between malignant and benign pulmonary nodules radiologically is very useful for our patients, especially those at low risk.
The title reflects the content appropriately.
There is a structured abstract.
As you know, pulmonary nodules are small, rounded opacities 4 to 30 mm in size, and rounded opacities

larger than 30 mm are classified as pulmonary masses. As you excluded micronodules (<6 mm) in your study, it would be better to exclude pulmonary masses also, and I suggest that you analyze your data without pulmonary masses for a better conclusion.
Is your study only about solid nodules, or are
semisolid nodules or ground glass nodules also included?
Cystic lesions are another entity and should not be included in this study. (You reported bronchogenic cyst and hydatid cyst as benign pulmonary nodules.)
In heterogeneous nodules, the calculation method is not completely clear. Please explain in more detail how you calculate contrast load and iodine load in a heterogeneous nodule. (Do you use the average calculation in different parts of the nodule, the calculation at the center of each nodule, or the maximum calculation in any part of the nodule?)
Please also explain more about necrotic nodules.
The appropriateness, clarity, and adequacy of the figures are very good, but you don't display any tables.
If you display your data in graphs and tables, the data will be more understandable to readers.
I also recommend that you use more recent references from the last five years.
Thank you for choosing this journal.

Editor-in-Chief MAJOR REVISION 1 Sep 2024

Dear authors,
Your article needs Major revision.
Regards

2

Revision 1

AUTHORS' RESPONSE TO REVIEWERS

Authors' reply to reviewers

The next pages contain the authors' point-by-point reply to the comments of this revision round, as submitted with the revised manuscript. It is published as the authors wrote it.

Reviewer 1:

1. In the abstract: pathologically proven or 2 years follow-up was stated.

2. 81. about unknown metastasis, more detailed, rearranged and explained.

3. For the result (one for analysis, one for demographic characteristics). Tables were drawn and added.

4. ROC curve analysis is recommended for sensitivity and specificity. ROC curve analysis was performed. Correlation analysis was also added.

Reviewer 2:

Why were pulmonary nodules under 1-6 mm excluded from the study?

Statistical analysis was performed again and nodules between 5-30 mm were added. In addition, nodules under 5 mm were not included in the study because they showed very high differences in different measurements of contrast load and iodine load.

2- Explanation of pulmonary nodules according to size changes.

1-2. Pulmonary nodules smaller than 5 mm are usually evaluated under a specific protocol and are often excluded from the study. There are several reasons for this:

Low Cancer Risk: Small nodules, especially those smaller than 5 mm, generally carry a low risk of cancer. Most small nodules are benign and less likely to develop lung cancer. Therefore, further evaluation is not required immediately.

Follow-up Strategies: Small nodules are usually monitored over time. Regular follow-up and screening tests (such as low-dose computed tomography (CT) scans) can be used to monitor for growth or other changes. If a nodule begins to grow or shows other changes, further testing and more invasive procedures, such as a biopsy, may be performed to establish a diagnosis.

False-Positive Results: Small nodules can often produce false-positive results. This can lead to unnecessary anxiety or invasive procedures, mistaking a nodule for cancer when it is actually benign. Therefore, a wait-and-see approach is often preferred for small nodules.

Efficient Use of Resources: Small nodules are generally of less clinical importance and performing detailed tests on these nodules may unnecessarily increase the efficient use of healthcare resources. Therefore, it is more logical to focus on larger and potentially more dangerous nodules.

As a result, small pulmonary nodules are usually managed with follow-up and monitoring, and this approach can help reduce both unnecessary tests and patient anxiety.

3- Statistical analyses were completely redone and added.

Reviewer 3:

1. 5-30 mm pulmonary nodules were added. Mass lesions and micronodules were excluded from the study

2.Our study is a study covering solid nodules and is stated in this article.

3.Since our study is prospective, all lesions with solid appearance were included, some nodules appear to be solid nodules because they have dense content. Cystic nodule diagnoses were made after surgical excision, and therefore 2 cysts were also detected in the study.

4.The average of several measurements made with a ROI as homogeneous and as close to the central part of each nodule was written. When there were very high value differences, it was not included in the study. It is stated in the article.

5.Necrotic metastatic nodule was detailed.

6.Tables and new figures were added.

7.Graphs and tables were added.

8.New and up-to-date references were added and comments were made in the light of these references.

Reviewer 4:

Abstract

1. Background: The background should provide more context and justification for the study. These sections have been reorganized and deficiencies have been addressed.

2. Objectives: The objectives need to be clearly stated. The purpose is somewhat vague and could benefit from specificity. These sections have been reorganized and deficiencies have been addressed.

3. Methods: The methods section should include detailed descriptions of the study design (cross-sectional), sampling methods, patient selection criteria, gold standards, data collection, and statistical analysis methods. These sections have been reorganized and deficiencies have been addressed.

4. Results: The results can be improved with absolute numbers and effect sizes for clarity when presented. This could not be fully explained in the original manuscript due to the journal's word limit. These sections have been reorganized and deficiencies have been addressed.

5. Conclusion: The conclusion should directly address the research question and be firmly supported by the results, as they currently appear

speculative. These sections have been reorganized and deficiencies have been addressed.

Introduction

6. Lack of Background Context:. These sections have been reorganized and deficiencies have been addressed.

7. Inadequate Problem Statement: These sections have been reorganized and deficiencies have been addressed.

8. Inadequate Justification for the Study:. These sections have been reorganized and deficiencies have been addressed.

9. Hypothesis/Objectives: These sections have been reorganized and deficiencies have been addressed.

10. Disjointed Sections:. These sections have been reorganized and deficiencies have been addressed.

Methods

11. Lack of Detail in Study Setting:. These sections have been reorganized and deficiencies have been addressed.

12. Study Design: These sections have been reorganized and deficiencies have been addressed.

13. Lack of Detail in Sampling Method: These sections have been reorganized and deficiencies have been addressed.

14. No Sample Size Calculation: The fact that power analysis was not performed in this study is a weakness in terms of reliability and is a limitation of this study because it is not known whether the sample size is sufficient.

15. Vague Description of Exclusion Criteria: These sections have been reorganized and deficiencies have been addressed.

16. Insufficient Details in Inclusion and Exclusion Procedures: These sections have been reorganized and deficiencies have been addressed.

17. Missing Information on Ethics Approval Process: These sections have been reorganized and deficiencies have been addressed.

18. Missing Details on Blinding: These sections have been reorganized and deficiencies have been addressed.

19. Missing Description of Data Management: These sections have been reorganized and deficiencies have been addressed.

20. Description of Statistical Tests: These sections have been reorganized and deficiencies have been addressed.

Results

21. Inadequate Presentation of Results: These sections have been reorganized and deficiencies have been addressed.

22. Valuable Reference: This source was used as a reference and was also used for improvement. These sections have been reorganized and deficiencies have been addressed**.**

Discussion

23. Lack of Clear Structure: The discussion should be more organized to improve clarity and flow of ideas. 24. Repetition of Information:. These sections have been reorganized and deficiencies have been addressed.

25. Limited Integration of Prior Research: These sections have been reorganized and deficiencies have been addressed.

26. Lack of Critical Analysis:. These sections have been reorganized to address deficiencies.

27. Inadequate Discussion of Limitations: These sections have been reorganized to address deficiencies.

28. Lack of Future Directions:. These sections have been reorganized to address deficiencies.

2 Revision 1

3 comments · 3 Nov 2024 – 18 Dec 2024

Referee 1 Reviewer

MAJOR REVISION 3 Nov 2024

Dear Authors,

Thank you for the substantial effort you put into revising the manuscript. While your responses addressed several initial comments, there are still essential points requiring further clarification and revision:

Major Concerns

• Response Specificity: A similar and purely theoretical sentence should not be used to respond to all comments; each response should clearly state what actions were taken for each point, and the additional sentence included in the main text in response to each comment should also be mentioned.
• Methodological Concerns - Sample Size and Power Analysis: The most significant methodological concern of this study is the insufficient sample size, which you were asked to clarify through a power analysis. However, this request was left unaddressed, and the insufficient sample size was only mentioned as a study limitation. Meanwhile, a study with a sample size smaller than the minimum required number lacks validity.
• Results Presentation: The results section was not correctly revised based on the referenced source, whereas it is necessary to utilize Tables 1 to 3 and the ROC curve for presenting the results.

Additionally, the following supplementary points should be taken into account:

Abstract

1. Background: The background provides some context but could still expand on the specific challenges and significance of differentiating between benign and malignant pulmonary nodules.
2. Methods: While the methods section mentions patient selection and imaging techniques, it lacks a clear description of the cross-sectional design.
3. Conclusion: The conclusion addresses DECT's utility in nodule characterization but could more directly connect findings to the research question.

Full-Text

Introduction
4. Background Context: The introduction provides general information on DECT and pulmonary nodules, though it could benefit from additional statistics or background on the clinical prevalence and impact of solitary pulmonary nodules.

Methods
5. Study Setting: Information on the study setting (e.g., geographic location) and generalizability is still missing.
6. Sampling Method: More detail on patient recruitment and representativeness is needed.
7. Blinding: There is no mention of blinding in image analysis, which could introduce bias.

Discussion
8. Structure: The discussion could be more structured, with clearer sections for interpretation, limitations, and implications.
9. Future Directions: Including specific suggestions for further research or clinical implications would strengthen the conclusion.

Addressing these comments will further strengthen the manuscript and enhance its value to readers. Thank you again for your efforts, and I look forward to reviewing the revised version.

Best regards,

Referee 2 Reviewer

MINOR REVISION 4 Dec 2024

My major concern with the response to the revision is the format of the response to the reviewer: the authors omitted the reviewer's original comments, making the response vague...
It should follow a question-and-answer format, with specific answers and references to changes in the main text by page and line number.
Anyway, my comments are as follows:
1. The new abstract is too long.
2. Lines 21-24 are unnecessary; exclusion criteria shouldn't be the absence of inclusion criteria.
3. Lines 30 - 35 are beyond the scope of the abstract.
4. Mention the p-value for the gender difference between the benign and malignant groups.
5. Explain the difference in the visual color map between benign and malignant cases, which is described as significant in the abstract but was not significant in the text.

Editor-in-Chief

MAJOR REVISION 18 Dec 2024

Dear authors,
Your article needs Major Revision.
Regards

3

Revision 2

AUTHORS' RESPONSE TO REVIEWERS

Authors' reply to reviewers

The next pages contain the authors' point-by-point reply to the comments of this revision round, as submitted with the revised manuscript. It is published as the authors wrote it.

Reviewer 1:

1. new abstract shortened.

2. lines 21-24 excessive, exclusion criteria, absence of inclusion criteria removed from the abstract.

3. lines 30-35 removed from the abstract because it was stated to be outside the scope of the abstract.

4. no statistically significant difference for gender difference between benign and malignant p value added to the text.

5. visual color map difference between benign and malignant statistically There was no statistically significant difference between the two groups (p:0.378). This was removed from the abstract because it was incorrect. It was left in the text as it is with the text statistically.

Reviewer 2:

I have no response to the criticism regarding the Small Sample Size and Sample Selection Bias. The need for a larger sample size has already been stated in the article and is written as a limitation.

Lack of Comprehensive Comparison with Other Methods: The criticism is the cost and the difficulty of doing it since not every patient has a PET-CT, Dynamic CT or MRI, but we think that the fact that every lesion has a routine 2-year follow-up or histopathological confirmation is the aspect that makes the study meaningful.

Reviewer 3:

The title could be changed to "Effectiveness of Twin-Beam Dual-Energy Computed Tomography in the Characterization of Solitary Pulmonary Nodules Larger than 5 mm" and it was changed.

Reviewer 4:

• We have tried to provide as specific responses as possible to all comments and to state them in the article.

• Methodological Concerns - Although the sample size was small, it was both a limitation and we still believe that this study will contribute to the literature. Unfortunately, the Power

Analysis was not conducted prior to the study, so we have no answer to this question. However, this action was not addressed and is noted as a study limitation.

Summary

1. Further information on lung nodules is provided in the context of the background.

2. Methods: In the Methods section, an attempt was made to provide clarity regarding patient selection and imaging techniques, and an attempt was made to shorten it upon criticism from the reviewers.

3. The result stated that the benefit of DECT in nodule characterization and the contribution of three different technical analyses in the study in the distinction of these nodules were presented.

Full Text

Introduction

4. Background Context and Introduction were written and the research-oriented part was also written in the background.

Methods

5. Study Setting: Study setting (e.g. geographic location) and generalizability were added by explaining in the patient selection section.

6. Patients who met the inclusion and exclusion criteria were included in the study over a 2-year period. Since it is a regional center where advanced examinations and diagnoses are made in lung patients, we can say that although the sample size is small due to the time and random patient selection, it was taken with appropriate methodology.

7. Blinding: In the image analysis section; *Each nodule was evaluated by a radiologist with 14 years of experience in thorax imaging who was blind to the histopathological results or previous radiologic features of the patients, regarding three different parameters. In order to reduce bias in image analysis, a second radiologist was consulted for disagreements. In case of disagreement, a third experienced radiologist was consulted and the decision was made.* It is stated as.

Discussion

8. An attempt was made to restructure the discussion section, removing some sections or making small additions.

9. Additions were made to the results section for further research or clinical implications.

3 Revision 2

4 comments · 1 Feb 2025 – 22 Feb 2025

Referee 1 Reviewer

ACCEPT 1 Feb 2025

Accept

Associate Editor

ACCEPT 19 Feb 2025

Dear EIC,
The article is acceptable.
Regards

Referee 4 Reviewer

ACCEPT 19 Feb 2025

This paper is suitable for publication in IJR.

Editor-in-Chief

MINOR REVISION 22 Feb 2025

Dear authors,
Your article needs Minor Revision.
Regards

4

Revision 3

AUTHORS' RESPONSE TO REVIEWERS

Authors' reply to reviewers

The next pages contain the authors' point-by-point reply to the comments of this revision round, as submitted with the revised manuscript. It is published as the authors wrote it.

February 28, 2025

Dear Professor

IJ Radiology

Editor-in-Chief

Dear Editor:

We wish to submit the revised version of the manuscript entitled "**Effectiveness of Twin-Beam Dual-Energy Computed Tomography in Characterization of Solitary Pulmonary Nodules Larger than 5mm**". The manuscript ID is 149360**.**

We thank you and the reviewers for your thoughtful suggestions and insights. The manuscript has benefited from these insightful suggestions. I look forward to working with you and the reviewers to move this manuscript closer to publication in the IJ Radiology.

The manuscript has been rechecked, and the necessary changes have been made in accordance with the reviewers' suggestions. The responses to all comments have been prepared and attached here with/given below.

Thank you for your consideration. I look forward to hearing from you.

Sincerely,

Reviewers' Comments and Response:

Reviewer 1: The article is acceptable.

Our response to this sentence: Thank you for your review and acceptance of the article after revision.

Reviewer 2: The article after revision appears acceptable.

1-please change purpose title in abstract to objectives. Please change title materials and methods to patients and methods.

Our response to this sentence: Changed the abstract's purpose title to objectives. Changed the abstract's material and methods title to patients and methods.

2-the first sentence of abstract is unclear: “The use of imaging in the diagnosis of solitary pulmonary nodules in the lung has become easier and more reliable in recent years, parallel to technological developments, with different CT imaging techniques and today's dual energy tomography, thus characterizing pulmonary nodules as benign or malignant.” Please rephrase and clarify.

Our response to this sentence: To eliminate uncertainty, The sentence was rephrased as: ''Advances in technology have made it easier and more reliable to diagnose solitary pulmonary nodules in the lungs. Various CT imaging techniques, including modern dual-energy tomography, have improved the ability to accurately classify pulmonary nodules as either benign or malignant''

3-please add full term of abbreviations for the first usage for example DECT, IQR, PPV, NPV, AUC, ROI, …. [separately in abstract and paper]

Our response to this sentence: separately in abstract and paper added full term of abbreviations for the first usage.

4-this sentence has two this study. please correct: “In this prospective study, patients who underwent contrast-enhanced thoracic DECT scan for solitary pulmonary nodules, had histopathological examination results or at least 2-year follow-up CT scan were included in this study”

Our response to this sentence: This sentence was corrected as “In this prospective study, patients who underwent contrast-enhanced thoracic DECT scan for solitary pulmonary nodules, had histopathological examination results or at least 2-year follow-up CT scan were included”.

5-this part is inappropriate: “The relationship between benign and malignant …” benign and malignant what? In addition, this writing style is not appropriate: “The relationship between benign and malignant was evaluated in terms of gender, age, contrast load, iodine load, and color map.” Better version is for example as follows: “comparison of benign and malignant nodules was performed in terms of gender, age, contrast load, iodine load, and color map”

Our response to this sentence: “The relationship between benign and malignant was evaluated in terms of gender, age, contrast load, iodine load, and color map.” This sentence was changed to “The comparison of benign and malignant nodules was performed in terms of gender, age, contrast load, iodine load, and color map”.

6-this part is unclear: “visual enhancement, color map evaluation findings on contrast and iodine loads were …” please rephrase.

Our response to this sentence: Visual enhancement, color map evaluation findings on contrast and iodine loads were calculated and noted separately for each lung nodule. ” sentence has been revised as "The visual enhancement and color map evaluation results, including contrast and iodine load measurements, were separately calculated and recorded for each lung nodule".

7-please correct: “A total of 59 patients including 30 males (50.8%) and 29 females (49.2%) …..” [both in abstract and paper]

Our response to this sentence: There was no statistically significant difference in age between the two groups (p:0.506). revised in both the abstract and the main text. Statistical significance may not have been achieved due to the small number of patients.

8-line 45, please correct: “and in malignant nodules ….”

Our response to this sentence: line 45, revised: “and in malignant nodules ….”

9-please rephrase this sentence: “The sensitivity and specificity rates of a cut-off density value of 22 HU for the contrast load were 100% and 58.14%, respectively positive predictive value (PPV) 47,06% and negative predictive value (NPV) 100%(Area Under the Curve (AUC): 0,746)” [both in abstract and paper] it is unclear. [please add … for diagnosis of malignancy to this sentence and other similar ones in paper] [an alternative could be: “Considering a cut-off point of 22 HU for the contrast load in differentiation of malignant from benign nodules yielded a sensitivity of 100%, specificity of …….. ”] [please consider such style in all similar instances]

Our response to this sentence: this sentence rephrased:‘’Considering a cut-off point of 22 HU for contrast load in the diagnosis of malignancy, the sensitivity was 100%, specificity was 58.14%, positive predictive value (PPV) was 47.06%, and negative predictive value (NPV) was 100%. The Area Under the Curve (AUC) was 0.746

The median iodine load was 0.0 mg/dl (IQR: 4.5) in benign nodules and 4.5 mg/dl (IQR: 11.8) in malignant nodules. Considering a cut-off value of 1 mg/ml for the diagnosis of malignancy, the sensitivity was 100%, specificity was 62.79%, positive predictive value (PPV) was 50%, and negative predictive value (NPV) was 100% (AUC: 0.768)."

10-line 76, please correct: “discrimination between benign and malignant conditions”

Our response to this sentence: line 76 was revised as “discrimination between benign and malignant conditions”.

11-line 94-5, please correct: “pulmonary thromboembolism and pulmonary hypertension”

Our response to this sentence: line 94-5 was revised as “pulmonary thromboembolism and pulmonary hypertension”.

12-please add objectives part to paper before method section according to journal format.

Our response to this sentence: objectives part was added to the paper before method section according to journal format.

13-based on journal format, separate title in background is not acceptable. So, please delete title “Twin-Beam Dual-Energy Computed Tomography” and merge its contents to background. In addition, please change introduction title to background.

Our response to this sentence: ıt was deleted title “Twin-Beam Dual-Energy Computed Tomography” and merge its contents to background. introduction was changed to background and the objective section was also added.

14-please add sequential numbers to titles and sub-titles.

Our response to this sentence: ıt was added sequential numbers to titles and sub-titles.

15-what is the meaning of this part: “blinded to etiological factors” please rephrase.

Our response to this sentence: ıt was changed to ; Patients who were referred to the radiology clinic due to suspicion of lung nodules or masses were included in this study. The assessment of including was conducted without prior knowledge of the underlying etiological factors.

16-lines 137-40, please correct: “The patients who underwent at least one contrast-enhanced thoracic DECT scan for a solitary pulmonary nodule and had histopathological examination results (after a transthoracic/transbronchial or excisional biopsy) or had at least 2 years of follow up CT scans in a tertiary university hospital between 2017-2019 were included in this study”

Our response to this sentence: Patients who underwent at least one contrast-enhanced thoracic DECT scan for a solitary pulmonary nodule and had either histopathological examination results (from a transthoracic, transbronchial, or excisional biopsy) or a minimum of two years of follow-up CT scans at a tertiary university hospital between 2017 and 2019 were included in this study.

17-line 140, please correct The The Dutch-Belgian

Our response to this sentence: The Dutch-Belgian Randomized Lung Cancer Screening Trial (NELSON study) determined that the risk of lung cancer development within two years is very low if the nodules remain unchanged during that time.

18-this has been mentioned as exclusion criteria that does not make sense: “Histopathological examination results and thoracic CT images of the patients were reviewed in the hospital database and radiology department records.”

Our response to this sentence: “Histopathological examination results and thoracic CT images of the patients were reviewed in the hospital database and radiology department records.” The sentence was removed because it was misunderstood as an exclusion criterion.

19-line 153, please correct as: “…. follow-up CT scans, nodules were ….”

Our response to this sentence: ıt was corrected as: “…. follow-up CT scans, nodules were ….”

or it can be revised in this way.

Patients were excluded from the study if they lacked at least two years of follow-up CT scans, histopathological examination results, or both. Additionally, those with known systemic diseases and lung nodules potentially caused by these conditions were also excluded.

20-line 165 and 166, please replace x character by multiply character (512 x 512) and 64x0.6mm

Our response to this sentence: ıt was replaced x character by multiply character.

21-please add manufacturer data of iohexol

Our response to this sentence: Manufacturer data for iohexol added as GE Healthcare's Omnipaque

22-line 179, please correct: 3 mm thickness axial dataset

Our response to this sentence: It was corrected: 3 mm thickness axial dataset

23-please rephrase this sentence: “The average of several measurements made with a ROI as homogeneous and as close to the central part of each nodule as possible was written” it is unclear.

Our response to this sentence: this sentence rephrased as : “The average value from multiple measurements taken within a region of interest (ROI), placed as homogeneously as possible and near the central part of each nodule, was recorded.

24-please correct: “(Figures 3-7).” And (Figures 1,2).

Our response to this sentence: The figures were written separately as figure (Figures 1).

25-manufacturer data of SPSS 21 is as follows: “IBM Corp. Released 2012. IBM SPSS Statistics for Windows, Version 21.0. Armonk, NY: IBM Corp.” please correct.

Our response to this sentence: revised as follows: “IBM Corp. Released 2012. IBM SPSS Statistics for Windows, Version 21.0. Armonk, NY: IBM Corp.”

26-this sentence is not appropriate and could be deleted: “This non-parametric test was preferred because the Mann-Whitney U test would not be affected by the fact that the Normal Distribution Assumption was not met, there was a small sample size, and there were outliers in the data to compare the medians of two independent groups.”

Our response to this sentence: this sentence deleted: “This non-parametric test was preferred because the Mann-Whitney U test would not be affected by the fact that the Normal Distribution Assumption was not met, there was a small sample size, and there were outliers in the data to compare the medians of two independent groups.”

27-line 221, this sentence is meaningless: “The difference in between males and females was not significant (p:0.506).”

Our response to this sentence: This sentence was changed to:

There was no statistically significant difference between male and female lung nodules in terms of whether they were benign or malignant (p:0.506).

If it still does not make sense, this sentence can be deleted.

28-line 222-4, please correct two sentences as: “The mean age of the patients with benign and malignant nodules were 53.5 ±12 years (age range: 223 25-73 years) and 69.2±5.59 years (age range: 57-75 years); respectively. (p<0.001)”

Our response to this sentence: Two sentences corrected as: “The mean age of the patients with benign and malignant nodules were 53.5 ±12 years (age range: 223 25-73 years) and 69.2±5.59 years (age range: 57-75 years); respectively. (p<0.001)”

29-please use past tenses in result sentences. Some sentences are present and some are past. Present sentences are not appropriate. [for example: The largest nodule has a maximum diameter of 30mm while the smallest one has 5mm] [there are some flaws in English writing. Please consult an expert editor]

Our response to this sentence: Result sentences were revised to be in past tense.

30-table 1 legend is not appropriate. it would be better as: Demographic Characteristics of Patients

Our response to this sentence: table 1 legend was changed as: Demographic Characteristics of Patients

31-this is not a sentence: “Spearman correlation coefficient 0.862 (p<0.001)”

Our response to this sentence: This sentence was revised as follows. A strong correlation was observed between contrast load and iodine load, with a Spearman correlation coefficient of 0.862 ($p < 0.001$)

32-this sentence is not clear: “There was not a statistically significant difference in between two groups (p:0.378)” better version could be: “There was not a statistically significant difference in between two groups in this regard (p:0.378)”

Our response to this sentence: T his sentence was changed as: There was not a statistically significant difference in between two groups in this regard (p:0.378)

33-in table 2 and line 256, please correct as: Squamous Cell Carcinoma

Our response to this sentence: in table 2 and line 256, was corrected as: Squamous Cell Carcinoma

34-this term in table 2 is wrong: Median ± SD. It should be Median (IQR)

Our response to this sentence: in table 2 : The term Median ± SD was changed to Median (IQR).

35-line 260, please correct as: “… one was tuberculoma, one was granuloma one was a hydatid cyst and one was a bronchogenic cyst.”

Our response to this sentence: line 260, corrected as: “… one was tuberculoma, one was granuloma one was a hydatid cyst and one was a bronchogenic cyst.”

36-line 268, please correct as practice

Our response to this sentence: 36-line 268, corrected as practice

37-in line 273, the sentence is unclear: “Currently new techniques …..”

Our response to this sentence: Currently, new computed tomographic techniques, including DECT, have been adapted to enhance lesion evaluation by measuring contrast uptake and enhancement.

38-this sentence is not appropriate: “In this study, we tried to determine whether lung nodules could be benign or malignant by using the Dual CT technique, which consists of 3 different parameters: quantitative and qualitative visual analysis such as iodine load and contrast load.” [alternative: in this study, we tried to differentiate malignant lung nodules from benign ones by using the Dual CT technique, in which we used 3 different parameters including ……]

Our response to this sentence: we replaced it with this alternative sentence: In this study, we tried to differentiate malignant lung nodules from benign ones by using the Dual CT technique, in which we used 3 different parameters including quantitative and visual analysis such as iodine load and contrast load.

39-line 279, thoracic CT seems better.

Our response to this sentence: We revised it as thoracic ct in line 279, and we also revised this entire sentence.

40-lines 279-81, please correct as: "….. because the HU value in a tomographic voxel measures both the iodine concentration and the average densities of the underlying tissues."

Our response to this sentence: we corrected the whole sentence as follows.

Accurately measuring the density of each component in a lung lesion on conventional thoracic CT is challenging when multiple tissue types are present. This is because the HU value in a tomographic voxel reflects both the iodine concentration and the average densities of the different underlying tissues.

41-line 298, please correct as: "…. that we evaluated in this study…."

Our response to this sentence: It was corrected as: "…. that we evaluated in this study…."

42-line 338, what is the meaning of "…in terms of correlation ….."

Our response to this sentence: This sentence has been revised as follows for clarity.

Therefore, DECT may be an alternative option to PET-CT in lesion characterization, and studies comparing it with PET-CT are needed to support this idea or to confirm the nature of the lesion and may be an alternative option to PET-CT.

43-what is soliter? Solitary? Please correct.

Our response to this sentence: soliter has been corrected to Solitary.

44-please rephrase this sentence: "In addition, multicenter randomized controlled studies that can compare with PET-CT, MR or dynamic CT and the diagnosis and imaging of lung nodules with new generation DECT devices supported by artificial intelligence will contribute."

Our response to this sentence: This sentence "In addition, multicenter randomized controlled studies that can compare with PET-CT, MR or dynamic CT and the diagnosis and imaging of lung nodules with new generation DECT devices supported by artificial intelligence will contribute."

rephrased as: In addition, multicenter randomized controlled studies comparing PET-CT, MRI, or dynamic CT with new-generation DECT devices supported by artificial intelligence will contribute to the diagnosis and imaging of lung nodules.

45-it is better to mention in the images that they are of CT types. There is no notification about the type of images in their legends.

Our response to this sentence: it mentioned in the images that they was of CT types. it was added notification about the type of images in their legends.

46-in figure 2 legend, there is no explanation on part d. please add necessary part and correct

Our response to this sentence: in figure 2 legend, on part d corrected.

47-please delete this part in figure 8: Diagonal segments …….

Our response to this sentence: it was deleted part in figure 8: Diagonal segments …….

48-figure 9 is not clear and is confusing. It is better to be drawn in a white background and in a clearer format.

Our response to this sentence: figure 9 clearer format loaded.

Reviewer 3: requested change has been made, however the type of revision is not professional and somehow disrespectful to reviewer time (without line number and without reviewer question), in spite of my previous comments

Our response to this sentence: According to the previous reviewer comments, we have tried to make revisions and respond as much as possible. We would never consider disrespecting our own time or the reviewer's time. If the time and effort we spend on revisions were known by the reviewer, perhaps this would not be thought. Still, we thank you for taking the time to evaluate. After this revision, the requested corrections have been made and we look forward to the acceptance of the article.

……

Reviewer 4: This paper is suitable for publication in IJR.

Our response to this sentence: Thank you for your review and acceptance of the article after revision.

4 Revision 3

1 comment · 8 Mar 2025

Editor-in-Chief

ACCEPT 8 Mar 2025

Dear authors,
Your article is acceptable for publication in IJR.
Regards