Supplementary Table S1. The Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) Checklist for Diagnostic Test Accuracy

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| --- | --- | --- | --- |
| **Section/topic** | **#** | **PRISMA-DTA Checklist Item** | **Reported on page #** |
| **TITLE / ABSTRACT** | | |  |
| Title | 1 | Identify the report as a systematic review (+/- meta-analysis) of diagnostic test accuracy (DTA) studies. | 1 |
| Abstract | 2 | Abstract: See PRISMA-DTA for abstracts. | 3 |
| **INTRODUCTION** | | |  |
| Rationale | 3 | Describe the rationale for the review in the context of what is already known. | 4 |
| Clinical role of index test | D1 | State the scientific and clinical background including the intended use and clinical role of the index test, and if applicable, the rationale for minimally acceptable test accuracy (or minimum difference in accuracy for comparative design). | 4 |
| Objectives | 4 | Provide an explicit statement of question(s) being addressed in terms of participants, index test(s), and target condition(s). | 4 |
| **METHODS** | | |  |
| Protocol and registration | 5 | Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address). If available, provide registration information including registration number. | 5 |
| Eligibility criteria | 6 | Specify study characteristics (participants, setting, index test(s), reference standard(s), target condition(s), and study design) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale. | 5-6 |
| Information sources | 7 | Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched. | 6 |
| Search | 8 | Present full search strategies for all electronic databases and other sources searched including any limits used such that they could be repeated. | 5-6 |
| Study selection | 9 | State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis). | 5-6 |
| Data collection process | 10 | Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators. | 6 |
| Definitions for data extraction | 11 | Provide definitions used in data extraction and classifications of target condition(s), index test(s), reference standard(s) and other characteristics (e.g. study design, clinical setting). | 6 |
| Risk of bias and applicability | 12 | Describe methods used for assessing risk of bias in individual studies and concerns regarding the applicability to the review question. | 6 |
| Diagnostic accuracy measures | 13 | State the principal diagnostic accuracy measure(s) reported (e.g. sensitivity, specificity) and state the unit of assessment (e.g. per-patient, per-lesion). | 6 |
| Synthesis of results | 14 | Describe methods of handling data, combining results of studies, and describing variability between studies. This could include but is not limited to a) handling of multiple definitions of target condition, b) handling of multiple thresholds of test positivity, c) handling multiple index test readers, d) handling of indeterminate test results, e) grouping and comparing tests, f) handling of different reference standards. | 6 |

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| **Section/topic** | **#** | **PRISMA-DTA Checklist Item** | **Reported on page #** |
| Meta-analysis | D2 | Report the statistical methods used for meta-analyses if performed. | 6 |
| Additional analyses | 16 | Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression) if done, indicating which were pre-specified. | Not applicable |
| **RESULTS** | | |  |
| Study selection | 17 | Provide numbers of studies screened, assessed for eligibility, included in the review (and included in meta-analysis if applicable) with reasons for exclusions at each stage, ideally with a flow diagram. | 7 |
| Study characteristics | 18 | For each included study, provide citations and present key characteristics including a) participant characteristics (presentation, prior testing), b) clinical setting, c) study design, d) target condition definition, e) index test, f) reference standard, g) sample size, h) funding sources. | 7-8 |
| Risk of bias and applicability | 19 | Present evaluation of risk of bias and concerns regarding applicability for each study. | 7 |
| Results of individual studies | 20 | For each analysis in each study (e.g. unique combination of index test, reference standard, and positivity threshold) report 2x2 data (TP, FP, FN, TN) with estimates of diagnostic accuracy and confidence intervals, ideally with a forest or receiver operator characteristic (ROC) plot. | 8 |
| Synthesis of results | 21 | Describe test accuracy including variability if meta-analysis was done. Include results and confidence intervals. | 8 |
| Additional analysis | 23 | Give results of additional analyses if done (e.g., sensitivity or subgroup analyses, meta-regression, analysis of index test, failure rates, proportion of inconclusive results, adverse events). | Not applicable |
| **DISCUSSION** | | |  |
| Summary of evidence | 24 | Summarize the main findings including the strength of evidence. | 8 |
| Limitations | 25 | Discuss limitations from included studies (e.g. risk of bias and concerns regarding applicability) and from the review process (e.g. incomplete retrieval of identified research). | 10 |
| Conclusions | 26 | Provide a general interpretation of the results in the context of other evidence. Discuss implications for future research and clinical practice (e.g. the intended use and clinical role of the index test). | 10 |
| **FUNDING** | | |  |
| Funding | 27 | For the systematic review, describe the sources of funding and other support as well as the role of the funders. | 11 |

Supplementary Table S2. The search strategy in each database

|  |  |
| --- | --- |
| MEDLINE via Ovid | Search terms |
| Index tests | exp Thoracoscopy/ or exp Biopsy, Needle/ or "thoracoscop\*".ab,ti. or "pleuroscop\*".ab,ti. or (pleural adj2 (biops\* or endoscop\* or puncture)).ab,ti. or "medical pleuroscop\*".ab,ti. or (needle adj2 (aspiration or biops\*)).ab,ti. or "puncture biops\*".ab,ti. or "cutting-needle biops\*".ab,ti. or ultrasound-guided.ab,ti. or image-guided.ab,ti. or CT-guided.ab,ti. or computed tomography-guided.ab,ti. or ((ultrasound or image or CT or computed tomography) adj2 guided).ab,ti. |
| Malignant pleural mesothelioma | exp Mesothelioma/ or mesothelioma.ab,ti. or MPM.ab,ti. |
| Embase via Embase.com |  |
| Index tests | “thoracoscopy”/exp OR exp “biopsy needle”/exp OR thoracoscop\*:ab,ti OR pleuroscop\*:ab,ti OR (pleural NEAR/2 (biops\* OR endoscop\* OR puncture)):ab,ti OR "medical pleuroscop\*":ab,ti OR (needle NEAR/2 (aspiration or biops\*)):ab,ti OR "puncture biops\*":ab,ti OR "cutting-needle biops\*":ab,ti or ultrasound-guided:ab,ti. OR image-guided:ab,ti OR CT-guided:ab,ti OR “computed tomography-guided”:ab,ti OR ((ultrasound OR image OR CT OR “computed tomography”) NEAR/2 guided):ab,ti |
| Malignant pleural mesothelioma | “Mesothelioma”/exp OR mesothelioma:ab,ti OR MPM:ab,ti |
| Central |  |
| Index tests | [Thoracoscopy] explode all trees OR [Biopsy, Needle] explode all trees OR (thoracoscop\*):ti,ab,kw OR (pleuroscop\*):ti,ab,kw OR (pleural NEAR/2 (biops\* or endoscop\* or puncture)):ti,ab,kw OR (medical pleuroscop\*):ti,ab,kw OR (needle NEAR/2 (aspiration or biops\*)):ti,ab,kw OR (puncture biops\*):ti,ab,kw OR (cutting-needle biops\*):ti,ab,kw OR (ultrasound-guided):ti,ab,kw OR (image-guided):ti,ab,kw OR (CT-guided):ti,ab,kw OR (computed tomography-guided):ti,ab,kw OR ((ultrasound or image or CT or computed tomography) NEAR/2 guided):ti,ab,kw |
| Malignant pleural mesothelioma | [Mesothelioma] explode all trees OR (mesothelioma):ti,ab,kw OR (MPM):ti,ab,kw |
| ICTRP | Mesothelioma AND Biopsy |

**Supplementary Table S3.** Excluded articles by full-text screening (N=115)

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| --- | --- | --- | --- | --- | --- |
| Title | Year | Journal | Volume | Issue | Pages |
| The diagnosis of clinically primary isolated cancerous pleurisy (study based on 25 cases). value of pleural cytology and of biopsy under pleuroscopy | 1960 | Rev. Lyon Med. | 9 | 4 | 233-252 |
| Efficacy of pleural needle biopsy and pleural fluid cytopathology in the diagnosis of malignant neoplasm involving the pleura | 1975 | CHEST | 67 | 5 | 536-539 |
| Needle biopsy of parietal pleura in the diagnosis of pleural effusion | 1978 | IRYO - Japanese Journal of National Medical Services | 32 | 8 | 959-965+938 |
| Comparative efficacy of diagnostic thoracoscopy with biopsy in exudative pleurisy of uncertain etiology. | 1984 | Sravnitel'naia effektivnost' diagnosticheskoi torakoskopii s biopsiei pri ekssudativnom plevrite neiasnoi etiologii. | | 5 | 22-26 |
| Ultrasound-guided pleural biopsy with Tru-Cut needle. | 1991 | Chest | 100 | 5 | 1328-33 |
| Thoracoscopy in pleural malignant mesothelioma: A prospective study of 188 consecutive patients: Part 1: Diagnosis | 1993 | Cancer | 72 | 2 | 389-393 |
| Diffuse pleural thickening: percutaneous CT-guided cutting needle biopsy. | 1995 | Radiology | 194 | 3 | 867-870 |
| CT-guided pleural needle biopsy in the diagnosis of malignant mesothelioma | 1995 | Journal of computer assisted tomography | 19 | 3 | 370-374 |
| Diagnostic flexible fiberoptic pleuroscopy in suspected malignant pleural effusions | 1995 | Chest | 107 | 2 | 424-429 |
| Medical thoracoscopy, results and complications in 146 patients: a retrospective study | 1998 | Respiratory Medicine | 92 | 2 | 228-232 |
| Medical thoracoscopy in the diagnosis of unexplained pleural effusion | 1998 | Respirology | 3 | 2 | 77-80 |
| Investigation of pleural effusion: an evaluation of the new Olympus LTF semiflexible thoracofiberscope and comparison with Abram's needle biopsy. | 1998 | Chest | 114 | 1 | 150-3 |
| Medical thoracoscopy, 146 patients: a retrospective | 1998 | Repiratory Medicine | 92 |  | 228-232 |
| Ultrasound guided forceps-biopsy of the pleura | 1999 | Ultraschall in der Medizin | 20 | 2 | 60-65 |
| [Ultrasound guided forceps biopsy of the pleura]. | 1999 | Sonographisch gesteuerte Zangenbiopsie der Pleura. | 20 | 2 | 60-65 |
| Malignant pleural mesothelioma: US-guided histologic core-needle biopsy | 1999 | Radiology | 211 | 3 | 657-659 |
| Computed tomography-guided fine needle aspiration of peripheral lung opacities. An initial diagnostic procedure?. | 2000 | Acta cytologica | 44 | 3 | 344-348 |
| Percutaneous image-guided cutting needle biopsy of the pleura in the diagnosis of malignant mesothelioma. | 2001 | Chest | 120 | 6 | 1798-1802 |
| Clinical utility and safety of diagnostic thoracoscopy | 2001 | Nihon Kokyﾅｫki Gakkai zasshi = the journal of the Japanese Respiratory Society | 39 | 12 | 899-902 |
| Percutaneous Image-guided Cutting-Needle Biopsy of the Pleura in the Presence of a Suspected Malignant Effusion | 2001 | Respirology | 219 |  | 510-514 |
| Diagnostic value of medical thoracoscopy in pleural disease: A 6-year retrospective study | 2002 | Chest | 121 | 5 | 1677-1683 |
| Standard pleural biopsy versus CT-guided cutting-needle biopsy for diagnosis of malignant disease in pleural effusions: a randomised controlled trial. | 2003 | Lancet | 361 | 9366 | 1326-30 |
| Safety and yield of ultrasound-assisted transthoracic biopsy performed by pulmonologists | 2004 | Respiration; international review of thoracic diseases | 71 | 5 | 519-522 |
| CT-guided transthoracic pleural biopsy, or video-assisted thoracoscopy? | 2006 | Medicina | 42 | 2 | 108-113 |
| Image-guided pleural biopsy: diagnostic yield and complications | 2006 | Clinical Radiology | 61 | 8 | 700-705 |
| Percutaneous needle pleural biopsies in pleural effusion of uncertain aetiology in a Nigerian teaching hospital | 2006 | Tropical Doctor | 36 | 2 | 112-114 |
| Pleural mesothelioma: sensitivity and incidence of needle track seeding after image-guided biopsy versus surgical biopsy. | 2006 | Radiology | 241 | 2 | 589-594 |
| Diagnostic value of thoracoscopic pleural biopsy for pleurisy under local anaesthesia | 2006 | ANZ Journal of Surgery | 76 | 8 | 722-724 |
| Image-guided pleural biopsy: diagnostic yield and complications. | 2006 | Clinal Radiolology | 61 | 8 | 700-5 |
| Diagnostic value of thoracoscopic pleural biopsy for pleurisy under local anaesthesia. | 2006 | ANZ Journal of Surgery | 76 | 8 | 722-4 |
| Prospective evaluation of flex-rigid pleuroscopy for indeterminate pleural effusion: accuracy safety and outcome. | 2007 | Respirology | 12 | 6 | 881-6 |
| The autoclavable semirigid thoracoscope: the way forward in pleural disease? | 2007 | European Respiratory Journal | 29 | 3 | 571-4 |
| Medical thoracoscopy: Diagnosis and management of malignant pleural effusions | 2008 | Annals of Oncology | 19 |  | viii124-viii124 |
| Diagnostic and therapeutic performance of video-assisted thoracoscopic surgery (VATS) in investigation and management of pleural exudates. | 2008 | Annals of Royal College of Surgeons | 90 | 7 | 597-600 |
| Pleuroscopy: our initial experience in Hong Kong | 2008 | Hong Kong Medical Journal | 14 | 3 | 178-184 |
| Medical Thoracoscopy: Pahang Experience | 2008 | Medical Journal?of?Malaysia | 63 | 4 | 298-301 |
| Semi-rigid thoracoscopy for undiagnosed exudative pleural effusions: a comparative study | 2008 | Chinese Medical Journal | 121 | 15 | 1384-1389 |
| A new electrocautery pleural biopsy technique using an insulated tip diathermic knife during semirigid pleuroscopy | 2009 | Respirology | 14 |  | A199-A199 |
| Limit of pleural effusion ADA-based identification of causes of pleurisy and usefulness of thoracoscopy under local anaesthesia using a flexible bronchoscope | 2009 | Respirology | 14 |  | A225-A225 |
| A new electrocautery pleural biopsy technique using an insulated-tip diathermic knife during semirigid pleuroscopy | 2009 | Surgical endoscopy | 23 | 8 | 1901-1907 |
| A local anaesthetic video-assisted thoracoscopy service: Prospective performance analysis in a UK tertiary respiratory centre | 2009 | Lung cancer (Amsterdam, Netherlands) | 66 | 3 | 355-358 |
| Narrow band imaging applied to pleuroscopy for the assessment of vascular patterns of the pleura. | 2009 | Respiration | 78 | 4 | 432-9 |
| A new electrocautery pleural biopsy technique using an insulated-tip diathermic knife during semirigid pleuroscopy. | 2009 | Surgical endoscopy | 23 | 8 | 1-Jul |
| Pleuroscopy Early Experience in an East Malaysian State With High Tuberculosis Prevalence | 2009 | Journal of Bronchology and Interventional Pulmonology | 16 | 4 | 250-253 |
| Medical Thoracoscopy (MT) performed by pneumologist | 2010 | American Journal of Respiratory and Critical Care Medicine | 181 | 1 |  |
| Pleural biopsy for a definitive diagnosis of malignant pleural mesothelioma | 2010 | Japanese Journal of Lung Cancer | 50 | 2 | 130-135 |
| Performance characteristics of semirigid thoracoscopy in pleural effusions of undetermined etiology | 2010 | Journal of bronchology & interventional pulmonology | 17 | 4 | 289-294 |
| Medical thoracoscopy vs CT scan-guided Abrams pleural needle biopsy for diagnosis of patients with pleural effusions: a randomized, controlled trial | 2010 | Chest | 137 | 6 | 1362-1368 |
| Performance Characteristics of Semirigid Thoracoscopy in Pleural Effusions of Undetermined Etiology | 2010 | Journal of Bronchology and Interventional Pulmonology | 17 | 4 | 289-294 |
| Semi-rigid Thoracoscopy: Initial Experience from A Tertiary Care Hospital | 2010 | Indian Journal of Chest Diseases and Allied Sciences | 52 |  | 25-27 |
| Interventional methods and their place in the differential diagnosis of malignant pleural effusions | 2011 | Respirology | 16 |  | 274-274 |
| CT guided core biopsies in a county hospital in Sweden - Diagnostic yield and complication rate | 2011 | Chest | 140 | 4 |  |
| Evaluation of medical thoracoscopy in high risk surgical patients at Basildon Hospital | 2011 | European Respiratory Journal | 38 |  |  |
| Clinical utility of thoracoscopy under local anaesthesia in undiagnosed pleural effusion | 2011 | European Respiratory Journal | 38 |  |  |
| Diagnostic comparison between pleural fluid cytology (PFC), cellular block (CB) and pleural biopsy (PB) under visual guidance | 2011 | European Respiratory Journal | 38 |  |  |
| Assessment of semi-rigid thoracoscopy in the diagnosis of malignant pleural effusion | 2011 | Journal of Thoracic Oncology | 6 | 6 | S476-S476 |
| Diagnosis of malignant pleural mesothelioma: Comparison between pleural effusion cytology and pleural biopsy | 2011 | Journal of Clinical Oncology | 29 | 15 |  |
| Ultrasound guided cutting needle biopsy of the pleura - A prospective study | 2011 | American Journal of Respiratory and Critical Care Medicine | 183 | 1 |  |
| Medical thoracoscopy for undiagnosed pleural effusions: experience from a tertiary care hospital in north India. | 2011 | The Indian journal of chest diseases & allied sciences | 53 | 1 | 21-24 |
| Application of flexirigid thoracoscopy in the diagnosis of pleural disease with unknown etiology | 2011 | Journal of South Medical University | 31 | 4 | 669-673 |
| Retrospective evaluation of effectiveness and safety of local anaesthetic thoracoscopy compared with blind chest drain pleurodesis | 2011 | European Respiratory Journal | 38 |  |  |
| Malignant mesothelioma in the North West - Are diagnostic delays affecting survival? | 2011 | Lung Cancer | 71 |  | S17-S18 |
| Analysis of "dry" mesothelioma with ultrasound guided biopsies. | 2012 | Lung Cancer | 78 | 3 | 229-33 |
| Diagnosis of exudative pleural effusion using ultrasound guided versus medical thoracoscopic pleural biopsy | 2013 | Egyptian Journal of Chest Diseases and Tuberculosis | 62 | 4 | 607-615 |
| Ultrasound-guided cutting-needle biopsy for diagnosing pleural disease: Experience in Oxford | 2013 | European Respiratory Journal | 42 |  |  |
| Malignant mesothelioma diagnosed at medical thoracoscopy - A service review | 2013 | European Respiratory Journal | 42 |  |  |
| Medical pleuroscoy, role in undiagnosed pleural effusion and therapy for pneumothorax and recurrent pleural effusion | 2013 | European Respiratory Journal | 42 |  |  |
| Local anaesthetic thoracoscopy (LAT) in a district general hospital in the UK | 2013 | American Journal of Respiratory and Critical Care Medicine | 187 |  |  |
| Role of medical thoracoscopy making histological diagnosis of exudative pleural effusion | 2013 | American Journal of Respiratory and Critical Care Medicine | 187 |  |  |
| Rigid versus semi-rigid thoracoscopy for the diagnosis of pleural disease: A randomized pilot study | 2013 | Respirology | 18 | 4 | 704-710 |
| [The diagnostic value of medical thoracoscopy for unexplained pleural effusion] | 2013 | Zhonghua jie he he hu xi za zhi = Zhonghua jiehe he huxi zazhi = Chinese journal of tuberculosis and respiratory diseases | 36 | 5 | 337-340 |
| Rigid versus semi-rigid thoracoscopy for the diagnosis of pleural disease: a randomized pilot study. | 2013 | Respirology | 18 | 4 | 704-10 |
| The analysis of clinicopathological characteristics and prognosis of malignant pleural mesothelioma | 2013 | European Respiratory Journal | 42 |  |  |
| Thoracic Ultra Sound (TUS) integrated approach for FNAB-US guided diagnosis and for monitoring environmental exposed subjects at risk of malignant pleural mesothelioma (MPM) and lung cancer (LC). Overview and preliminary report of TUS monitoring and screening approach. | 2014 | FASEB Journal | 28 | 1 |  |
| Diagnostic yield of medical thoracoscopy in cases of undiagnosed pleural effusion in Kobri El-Kobba military hospital | 2014 | Egyptian Journal of Chest Diseases and Tuberculosis | 63 | 3 | 629-634 |
| Computer tomography-guided core biopsies in a county hospital in Sweden: Complication rate and diagnostic yield | 2014 | Annals of Thoracic Medicine | 9 | 3 | 149-153 |
| Diagnostic accuracy and safety of semirigid thoracoscopy in exudative pleural effusions in Denmark | 2014 | Journal of bronchology & interventional pulmonology | 21 | 3 | 215-219 |
| Semirigid thoracoscopy: an effective method for diagnosing pleural malignancies. | 2014 | Radiology and oncology | 48 | 1 | 67-71 |
| Medical thoracoscopy: a useful diagnostic tool for undiagnosed pleural effusion | 2014 | The Indian journal of chest diseases & allied sciences | 56 | 4 | 217-220 |
| Physician-based ultrasound-guided biopsy for diagnosing pleural disease. | 2014 | Chest | 146 | 4 | 1001-1006 |
| Ultrasound guided needle pleural biopsy in patients with undiagnosed pleural effusion | 2014 | Egyptian Journal of Chest Diseases and Tuberculosis | 63 | 1 | 113-118 |
| Physician-based ultrasound-guided biopsy for diagnosing pleural disease. | 2014 | Chest | 146 | 4 | 1001-06 |
| Diagnostic rate of physician performed cutting needle pleural biopsy | 2015 | Lung Cancer | 87 |  | S15-S15 |
| Diagnostic yield of medical thoracoscopy in undiagnosed pleural effusion | 2015 | Tanaffos | 14 | 4 | 227-231 |
| Computed tomography-guided cutting needle pleural biopsy: Accuracy and complications. | 2015 | Experimental and Therapeutic Medicine | 9 | 1 | 262-266 |
| Ultrasound-Guided Abrams Pleural Biopsy vs CT-Guided Tru-Cut Pleural Biopsy in Malignant Pleural Disease, a 3-Year Follow-up Study | 2016 | Lung | 194 | 6 | 911-916 |
| Percutaneous computed tomography-guided aspiration and biopsy of intrathoracic lesions: Results of 265 procedures | 2016 | Lung India | 33 | 6 | 620-625 |
| Safety and outcome of medical thoracoscopy as diagnostic tool for pleural and pulmonary diseases | 2016 | Egyptian Journal of Chest Diseases and Tuberculosis | 65 | 4 | 781-789 |
| Local anaesthetic thoracoscopy: Evaluation of a thoracoscopy service in east dorset | 2016 | European Respiratory Journal | 48 |  |  |
| Intra-patient comparison of parietal pleural biopsies by rigid forceps, flexible forceps and cryoprobe obtained during medical thoracoscopy: A prospective series of 80 cases with pleural effusion | 2016 | BMC Pulmonary Medicine | 16 | 1 |  |
| CT scan-guided abrams' needle pleural biopsy versus ultrasound-assisted cutting needle pleural biopsy for diagnosis in patients with pleural effusion: A randomized, controlled trial | 2016 | Respiration | 91 | 2 | 156-163 |
| Medical thoracoscopic versus ultrasound guided transthoracic pleural needle biopsy in diagnosis of pleural lesions | 2016 | Egyptian Journal of Chest Diseases and Tuberculosis | 65 | 1 | 179-185 |
| Safety and Complications of Medical Thoracoscopy. | 2016 | Advances in medicine | 2016 |  | 3794791-3794791 |
| Medical thoracoscopy: Analysis on diagnostic yield through 30 years of experience | 2016 | Annals of Thoracic Medicine | 11 | 3 | 177-182 |
| TARGET trial - Randomised controlled trial to compare the diagnostic yield of positron emission tomography computed tomography (PET-CT) TARGETed pleural biopsy versus CT-guided pleural biopsy in suspected pleural malignancy | 2016 | Lung cancer (amsterdam, netherlands) | 91 |  | S70-S70 |
| Diagnostic accuracy and safety of rigid medical thoracoscopy in undiagnosed pleural effusion and ILD: Retrospective study of 100 patients | 2016 | Egyptian Journal of Chest Diseases and Tuberculosis | 65 | 1 | 199-203 |
| Image guided percutaneous pleural biopsy diagnostic yield and accuracy for benign and malignant pleural lesions | 2017 | Journal of Medical Imaging and Radiation Oncology | 61 |  | 180-180 |
| Semi-rigid thoracoscopy for diagnosing malignant pleural mesothelioma | 2017 | Respirology | 22 |  | 190-190 |
| Medical thoracoscopy: Experience from a UK District General Hospital | 2017 | European Respiratory Journal | 50 |  |  |
| Medical thoracoscopy in pleural disease: Experience from a one-center study | 2017 | Tuberculosis and Respiratory Diseases | 80 | 2 | 194-200 |
| Single port medical thoracoscopy using optical biopsy forceps in undiagnosed exudative pleural effusion: An Indian study | 2017 | American Journal of Respiratory and Critical Care Medicine | 195 |  |  |
| Six years experience of medical thoracoscopy at Al Hussein University Hospital | 2017 | Egyptian Journal of Chest Diseases and Tuberculosis | 66 | 1 | 175-179 |
| Medical thoracoscopy for the diagnosis and management of pleural effusions: Results of a retrospective analysis | 2017 | Journal of Thoracic Oncology | 12 | 1 | S608-S608 |
| Safety and Performance Characteristics of Outpatient Medical Thoracoscopy and Indwelling Pleural Catheter Insertion for Evaluation and Diagnosis of Pleural Disease at a Tertiary Center in Canada | 2017 | Canadian Respiratory Journal | 2017 |  |  |
| Diagnostic value of medical thoracoscopy in malignant pleural effusion | 2017 | BMC Pulmonary Medicine | 17 | 1 | 109-109 |
| Outcomes of those diagnosed with chronic fibrinous pleuritis after medical thoracoscopy: A local review | 2017 | Thorax | 72 |  | A214-A214 |
| Diagnosis of epithelioid mesothelioma by pleural cryobiopsies using semi-rigid pleuroscopy | 2017 | American Journal of Respiratory and Critical Care Medicine | 195 |  |  |
| Early-stage Clinical Characterization of Malignant Pleural Mesothelioma | 2018 | In Vivo | 32 | 5 | 1169-1174 |
| Randomised controlled trial to compare the diagnostic yield of positron emission tomography CT (PET-CT) TARGETed pleural biopsy versus CT-guided pleural biopsy in suspected pleural malignancy (TARGET trial) | 2018 | BMJ Open Respiratory Research | 5 | 1 |  |
| The role of semi-rigid thoracoscopy in the diagnosis of undiagnosed pleural effusions in a tertiary care centre in North India | 2018 | Journal, Indian Academy of Clinical Medicine | 19 | 1 | 47-51 |
| Malignant pleural mesothelioma: Diagnostic value of medical thoracoscopy and long-term prognostic analysis | 2018 | BMC Pulmonary Medicine | 18 | 1 |  |
| Success rate of medical thoracoscopy and talc pleurodesis in malignant pleurisy: A single-centre experience | 2018 | Respirology | 23 | 6 | 613-617 |
| Comparison of PANAMutyper and PNAClamp for Detecting KRAS Mutations from Patients With Malignant Pleural Effusion | 2019 | In Vivo | 33 | 3 | 945-954 |
| Safety and complications of medical thoracoscopy in the management of pleural diseases | 2019 | BMC Pulmonary Medicine | 19 | 1 |  |
| EXPERIENCE IN MEDICAL THORACOSCOPY: A FOUR-YEAR RETROSPECTIVE STUDY | 2019 | Chest | 155 | 4 | 151A-151A |
| Efficacy and safety of ultrasound (US) guided percutaneous needle biopsy for peripheral lung or pleural lesion: Comparison with computed tomography (CT) guided needle biopsy | 2019 | Journal of Thoracic Disease | 11 | 3 | 936-943 |
| Effectiveness and safety of local anesthetic, semi-flexible pleuroscopy・experience from a peripheral hospital | 2019 | Pulmonology | 25 | 1 |  |
| Diagnosis of Malignant Pleural Effusion Using CT Scan and Pleural-Fluid Cytology Together. A Preliminary Case–Control Study | 2020 | Anticancer Research | 40 | 2 | 1135-1139 |

**Supplementary Figure S1.** Methodological evaluation of medical thoracoscopy using the modified Quality Assessment of Diagnostic Accuracy Studies-2 tool

![グラフ, 棒グラフ

自動的に生成された説明]()

**Supplementary Figure S2.** Assessment of risk of bias and applicability for each domain in the included studies

![ダイアグラム が含まれている画像

自動的に生成された説明]()