DIAGNOSTIC YIELD AND OUTCOME OF BRONCHOSCOPY UNIT AT AIN SHAMS UNIVERSITY HOSPITAL IN CURRENT CLINICAL PRACTICE (INCLUDING RECENT MODALITIES AND INTERVENTIONAL PULMONOLOGY)

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ABSTRACT:

Background: The field of bronchoscopy and interventional pulmonology was advancing rapidly. minimally invasive approaches were replacing aggressive surgical ones for the diagnosis of chest disease and staging of lung cancer, treatment, and palliative intervention. Recent modalities help in early detection, allow early treatment, ideally influencing patient outcomes and also palliative management of malignant patients to enhance quality of life. These modalities had been introduced with the aim to increase the diagnostic and therapeutic yield of endoscopy; such innovations are limited to specialized centres.

Aim of The Work: We aim in this study to assess the diagnostic yield of routine bronchoscopy and interventional pulmonology techniques and its recent modalities, including EBUS, navigation bronchoscopy, and thoracoscopy, also rigid bronchoscopy with therapeutic purpose with percentage of successes and complications with different procedure including type of anaesthesia and interventional pulmonology at bronchoscopy and interventional pulmonology unit at Ain Shams University Hospital.

Patient and methods: Prospective cross-sectional study at bronchoscopy and interventional pulmonology unit in chest department of Ain Shams University Hospital from July 2022 to end of July 2023, was carried out on 394 patients attending Ain Shams University Hospital. Where patient undergo preoperative assessment for fibreoptic bronchoscopy including different recent modalities as (EBUS and Navigation Lung Point), rigid bronchoscopy (debulking, tracheal dilatation, foreign body removal, drug instillation and stent insertion) and thoracoscopy, with type of anaesthesia was indicated and intraoperative follow up with postoperative assessment and follow up. All of them were subjected to full history and clinical examination, and monitored regarding their preprocedural investigations, procedure details and sampling techniques, complications, and finally the patients were followed up regarding their histopathological and bacteriological results and follow up, with percentage of success also in therapeutic yield

Results: A total of 394 patients were included, the mean age of all patients was (48 ± 18.4) years. Regarding the patients, (42.1%) females; and (57.9%) males, with (81.7%) in urban areas, and (18.3%) in rural areas. According to Type of Endoscopy, (56.1%) had fibreoptic bronchoscopy, (12.9%) of patients had EBUS, (3.3%) had navigation (lung point), (16.5%) had rigid bronchoscopy, and (11.2%) had thoracoscopy. Diagnostic yield of the fibreoptic bronchoscopy (54.8%) success divided as (28.1%) malignancy, (6.8%) Sarcoid diagnosis, (12.7%) bacterial Pneumonia, (6.8%) Tuberculosis, and (1.8%) fungal diagnosis. While navigation bronchoscopy; (76.9%) success, with (61.5%) malignancy, (7.7%) sarcoid and TB diagnosis. According to the recent intervention EBUS, diagnostic yield (80.4%) success, with (43.1%) malignancy, (25.5%) sarcoid diagnosis, (2%) pneumonia, and (9.8%) tuberculosis diagnosis. Thoracoscopy diagnostic yield (84.1%) as successes with (64.2%) malignancy, (2.3%) bacterial Pneumonia while (13.6%) tuberculosis. Diagnostic yield of rigid Bronchoscopy; (60%) success,

with (49.2%) malignancy, (1.5%) sarcoid, (6.2%) bacterial pneumonia, (3.1%) fungal diagnosis, and (1.5%) hydatid diagnosis. Complications during endoscopy which highly significant increase with (patients with previous bronchoscopies, patients who undergo GA, and rigid bronchoscopy), and patient undergo to therapeutic endoscopy group; compared to diagnostic endoscopy group (p < 0.05 respectively). Complication was as intraoperative bleeding, persistent hypoxia, pneumothorax, tachycardia, hypertension, laryngospasm and bronchospasm presenting 7.6 % in all patients. Regarding all types of endoscopies; (93.4%) diagnostic endoscopy group, and (19.5 %) therapeutic endoscopy group. So, regarding diagnostic interventions, (28.9%) of patients had bronchial biopsies, (61.9%) had bronchial lavage, (42.9%) had bronchoalveolar lavage, (22.1%) had TBNA, and (26.9%) had pleural biopsy. Therapeutic endoscopic interventions; (4.1%) of patients had debulking, (2%) had stent insertion, and (0.5%) had tracheal dilatation, foreign body removal 5%, drug instillation 7.9%.

Conclusion: Routine bronchoscopy with recent modalities technique is a perfect diagnostic yield in current clinical practice. The procedure is more useful in diagnosis when combined with a new modality introduced to increase the diagnostic yield of bronchoscopy, which is limited to specialized centres as EBUS and navigational technique, also rigid bronchoscopy and thoracoscopy as diagnostic and therapeutic intervention. In real practice on real ground in short time with achievement of the significant advances in the field of advanced bronchoscopy and to put them into clinical context with less complications and better safety with current diagnostic challenges.

Keywords: Bronchoscopy, EBUS, Navigation, Tuberculosis, Sarcoidosis, Malignancy.

INTRODUCTION:

The field of bronchoscopy and interventional pulmonology was advancing rapidly. Minimally invasive approaches were replacing aggressive surgical ones for the diagnosis of chest disease and staging of lung cancer, treatment and palliative intervention. Recent modalities help in early detection, allow early treatment, ideally influencing patient outcomes and also palliative management of malignant patients to enhance quality of life. These modalities had been introduced with the aim to increase the diagnostic and therapeutic yield of endoscopy; such innovations are limited to specialized centres [14,15].

Where that indicate the safety of intervention with bronchoscopy in cost benefits with diagnosis and therapeutic intervention as debulking tumour with rigid bronchoscopy, removal of foreign body, instillation of antibiotics or antifungal and palliative Stent with rigid bronchoscopy [11,13].

Regarding diagnostic bronchoscopic interventions including bronchial biopsies, bronchial lavage, bronchoalveolar lavage, TBNA including with recent update EBUS, and pleural biopsy [1,5].

Diagnostic bronchoscopy has two major categories in the last 40 years. Flexible bronchoscopy that gave chest physicians clear access to the tracheobronchial tree with a rapid learning curve and greater patient comfort compared with rigid bronchoscopy. Over the last 5 years with the proliferation of new technologies that had significantly enhanced the diagnostic capabilities of flexible bronchoscopy compared with traditional methods. One of these new technologies is endobronchial ultrasound. In its various forms, endobronchial ultrasound has improved diagnostic yield for pulmonary masses, nodules, intrathoracic adenopathy, and disease extent, thereby reducing the need for more invasive surgical procedure [6,10]. Various navigational bronchoscopy systems

are available to increase flexible bronchoscope access to small peripheral pulmonary lesions [5].

The first therapeutic intervention in the tracheobronchial tree was performed by Gustav Killian in 1897. Using a rigid bronchoscope, Killian extracted a pork bone from a patient's right main stem bronchus in an era when foreign body airway obstruction was an often-fatal event. The rigid bronchoscope was the standard instrument for pulmonary diagnostic and therapeutic procedures for nearly 70 years, but had restricted general application due to its limited ability to evaluate beyond the trachea and main stem bronchi. Among the new diagnostic modalities available to chest physicians, as endobronchial ultrasound (EBUS) had the most profound impact [6,7].

AIM OF THE WORK:

We aim in this study to assess the diagnostic yield of routine bronchoscopy and interventional pulmonology techniques and its recent modalities, including EBUS, navigation bronchoscopy, and thoracoscopy, also rigid bronchoscopy with therapeutic purpose with percentage of successes and complications with different procedure including type of anaesthesia and interventional pulmonology at bronchoscopy and interventional pulmonology unit at Ain Shams University Hospital.

PATIENTS AND METHODS:

Prospective cross-sectional study at bronchoscopy and interventional pulmonology unit in chest department of Ain Shams University Hospital from July 2022 to end of July 2023, was carried out on 394 patients attending Ain Shams University Hospital. Where patient undergo preoperative assessment for fiberoptic bronchoscopy including different recent modalities (EBUS and navigation (lung point), rigid bronchoscopy (debulking ,tracheal dilatation,

foreign body removal ,drug instillation and stent insertion) and thoracoscopy with type of anaesthesia was indicated and intraoperative follow up with postoperative assessment and follow up , All of them were subjected to full history and clinical examination, and monitored regarding their preprocedural investigations, procedure details and sampling techniques, complications, and finally the patients were followed up regarding their histopathological and bacteriological results and follow up, percentage of success also in therapeutic yield.

Study procedure and interventions: All patient received and undergo:

Demographic data:

Sex, age, weight, height, smoking habits, and comorbid illness. Full medical history, clinical examination including vital data (blood pressure, respiratory rate, temperature and heart rate) before, during, and 15 min after the procedure, laboratory investigations as complete blood count, international neutralized ratio and arterial blood gases, ECG, chest radiographs e.g., X-ray and computed tomography. Selected investigations according to the patient comorbidity. Chest Ultrasound assessment before thoracoscopy

Procedures:

Fibreoptic bronchoscopy and rigid bronchoscopy with recent modalities as navigation (lung point) with sampling, either diagnostic or therapeutic. With standards for the evaluation of the outcome: diagnostic yield (cytological, pathological, or bacteriological examination of the specimen [biopsy, bronchial lavage, transbronchial needle aspiration (TBNA) with also with recent modalities as EBUS, transbronchial lung biopsy, broncho alveolar lavage (BAL) and, also pleural biopsy with thoracoscopy. therapeutic yield, for example, foreign body removal or debulking of tumour mass (guided by radiological workup such as conventional

CXR or CT scan). Anaesthetic or procedural complications.

Ethical consideration:

Data started after approval confirmed by ethical committee, data confidentially maintained, data was taken from participants (FMASU R235/2022), Federal Wide assurance NO FWA000017585

Statistical Analysis:

Data entry, processing and statistical analysis was carried out using MedCalc ver. 20 (MedCalc, Ostend, Belgium). Tests of significance (Mann-Whitney's, Kruskal-Wallis, Chi square tests, and ROC Curve analysis) were used. Data were presented and suitable analysis was done according to the type of data (parametric and non-parametric) obtained for each variable. P-values less than 0.05 (5%) was considered to be statistically significant.

Descriptive statistics:

Mean, Standard deviation ($\pm$ SD) and range for parametric numerical data, while median and inter-quartile range (IQR) for non-parametric numerical data.

Analytical statistics:

Mann-Whitney's Test (U test), Wilcoxon's test, Kruskal-Walli's test, Chi-Square test.

The ROC Curve:

Excellent accuracy = 0.90 to 1 (%).

Good accuracy = 0.80 to 0.90 (%).

Fair accuracy = 0.70 to 0.80 (%).

Poor accuracy = 0.60 to 0.70 (%).

Failed accuracy = 0.50 to 0.60 (%).

RESULTS:

Descriptive data:

The demographic and clinical variables in 394 patients who were included in the study are shown in the following tables, figures and diagrams.

Clinical data:

Table 1: Socio-demographic data among 394 patients.

Variables		Frequency (%) / Mean $\pm$ SD
Age (years)		48 $\pm$ 18.4
Sex	Female	166 (42.1%)
	Male	228 (57.9%)
Residency	Rural	72 (18.3%)
	Urban	322 (81.7%)
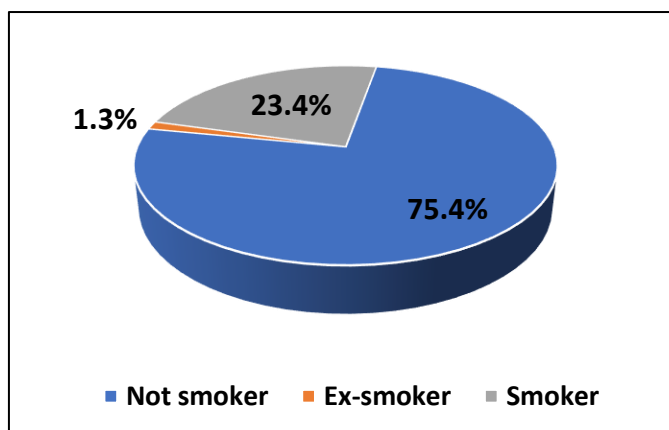
Diagram 1: Smoking among 394 patients.

Table 2: Endoscopic data.

Variables		Frequency (%)
Previous Endoscopy	Done	52 (13.2%)
Type of anaesthesia	GA	239 (60.7%)
	LA	155 (39.3%)
Type of Endoscopy	FOB	221 (56.1%)
	EBUS	51 (12.9%)
	Lung point	13 (3.3%)
	Rigid Bronchoscopy	65 (16.5%)
	Thoracoscopy	44 (11.2%)
Diagnostic Endoscopy	Total	368 (93.4%)
Diagnostic Endoscopic interventions	Bronchial Biopsy	114 (28.9%)
	Bronchial Lavage	244 (61.9%)
	Bronchoalveolar Lavage	169 (42.9%)
	Transbronchial Needle Aspiration	87 (22.1%)
	Pleural Biopsy	106 (26.9%)
Therapeutic Endoscopy	Total	77 (19.2%)
Therapeutic Endoscopic interventions	Debulking	16 (4.1%)
	Stent	8 (2%)
	Tracheal dilatation	2 (0.5%)
	Foreign body removal	20 (5%)
	Antifungal Instillation	1 (0.3%)
	Antibiotic Instillation	30 (7.6%)
Complications rate during Endoscopy	Total	30 (7.6%)

Complication was as intraoperative bleeding, persistent hypoxia, pneumothorax, tachycardia, hypertension, laryngospasm and bronchospasm. **as some patients had > 1 intervention.**

Table 3: Descriptive analysis for Diagnostic yield.

Fibreoptic Bronchoscopy		Frequency (%) (221 cases)
Diagnosis	Type	121 (54.8%)
Malignancy diagnosis	Total	62 (28.1%)
	Adenocarcinoma	19 (8.6%)
	Squamous cell	17 (7.7%)
	Small cell	5 (2.3%)
	Non-small cell	10 (4.5%)
	Other	11 (5%)
Sarcoid diagnosis	+ve	15 (6.8%)
Bacterial Pneumonia diagnosis	+ve	28 (12.7%)
TB diagnosis	+ve	15 (6.8%)
Fungal	+ve	4 (1.8%)
Rigid Bronchoscopy		Frequency (%) (65 cases)
Diagnosis	Type	39 (60%)
Malignancy diagnosis	Total	32 (49.2%)
	Adenocarcinoma	6 (9.2%)
	Squamous cell	9 (13.8%)
	Non-small cell	6 (9.2%)
	Other	11 (16.9%)
Sarcoid diagnosis	+ve	1 (1.5%)
Bacterial Pneumonia diagnosis	+ve	4 (6.2%)
Fungal diagnosis	+ve	2 (3.1%)
Hydatid diagnosis	+ve	1 (1.5%)
Thoracoscopy		Frequency (%)

		(44 cases)
Diagnosis	type	37 (84.1%)
Malignancy diagnosis	Total Non-small cell Mesothelioma Other	30 (68.2%) 1 (2.3%) 17 (38.6%) 12 (27.3%)
Parapneumonic Effusion	+ve	1 (2.3%)
TB diagnosis	+ve	6 (13.6%)
EBUS Bronchoscopy		Frequency (%) (51 cases)
Diagnosis	Type	41 (80.4%)
Malignancy diagnosis	Total Adenocarcinoma Squamous cell Small cell Non-small cell Other	22 (43.1%) 2 (3.9%) 3 (5.9%) 2 (3.9%) 2 (3.9%) 13 (25.5%)
Sarcoid diagnosis	+ve	13 (25.5%)
Inflammatory Lymph Node	+ve	1 (2%)
TB diagnosis	+ve	5 (9.8%)
Navigation Lung Point Bronchoscopy		Frequency (%) (13 cases)
Diagnosis	Type	10 (76.9%)
Malignancy diagnosis	Total Adenocarcinoma Small cell Non-small cell Other	8 (61.5%) 3 (23.1%) 1 (7.7%) 2 (15.4%) 2 (15.4%)
Sarcoid diagnosis	+ve	1 (7.7%)
TB diagnosis	+ve	1 (7.7%)

Table (3) describe percentage of diagnostic success in different type of endoscopy. Define of other malignant diagnosis in this table was diagnosed as spindle cell, mucoepidermoid, carcinoid, round Cell, neuroendocrine and bacteriological diagnosis like as Staph family or pseudomonas and other species.
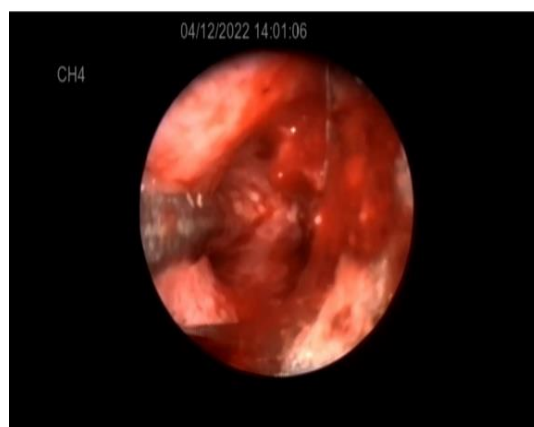

Fig. 1A

Fig. 1B

| Fig. 1C | Fig. 1D |

Figure 1 : Tracheal mass with complete obstruction of trachea was seen through introuduction of rigid bronchoscopy (Fig. 1A) complete debulking of tracheal fungating bulging mass (Fig. 1B) with fungating from right upper lobe bronchus (Fig. 1C,1D) , diagnosed as tracheobronchial with endobronchial Hodgkin lymphoma as rare presentation in young male student 18 years old complained of haemoptysis and hypoxia with right hilar mass in Chest CT.
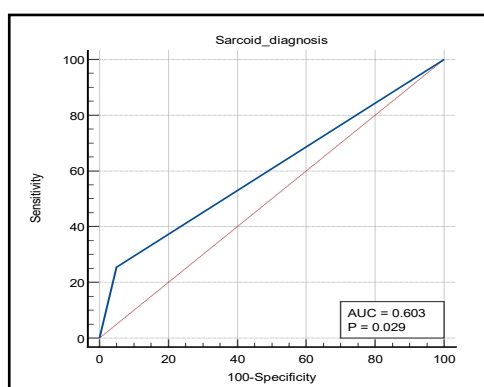
Table 4: Roc-curve of EBUS bronchoscopy to predict patients with diagnostic efficacy.

Variable	AUC	Sensitivity (%)	Specificity (%)	P value
Overall diagnostic success	0.600	80.39	39.65	0.011*
Malignancy diagnosis	0.523	43.14	61.52	0.5936
Sarcoid diagnosis	0.603	40	93.2	0.029*
Bacterial Pneumonia diagnosis	0.538	98.04	9.62	0.3504
TB diagnosis	0.517	9.80	93.59	0.7017
Fungal diagnosis	0.509	100	1.75	0.8381
Hydatid diagnosis	0.501	100	0.29	0.9731

ROC (Receiver operating characteristic), AUC= Area under curve. ---: only 1 case (test cannot be done)
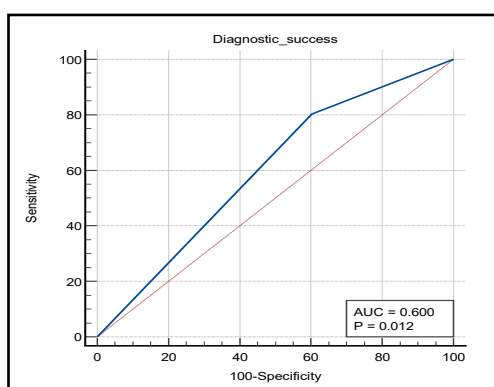
Diagram 2: ROC curve of EBUS bronchoscopy (Overall diagnostic success).

Diagram 3: ROC curve of EBUS bronchoscopy (Sarcoid diagnosis).

By using ROC-curve analysis, EBUS bronchoscopy predicted patients with diagnostic success, with poor (60%) accuracy, sensitivity 80% and specificity 39% ($p < 0.05$).

By using ROC-curve analysis, EBUS

bronchoscopy predicted patients with sarcoid diagnosis, with poor (60%) accuracy, sensitivity 25% and specificity 95% ($p < 0.05$).

By using ROC-curve analysis, EBUS bronchoscopy showed non-significant predictive values regarding all the remaining diagnoses ($p > 0.05$).
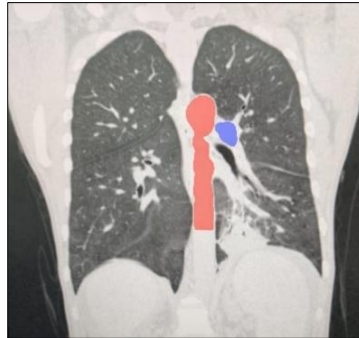

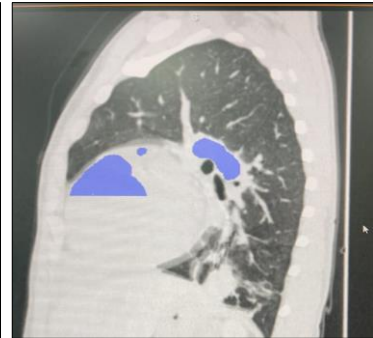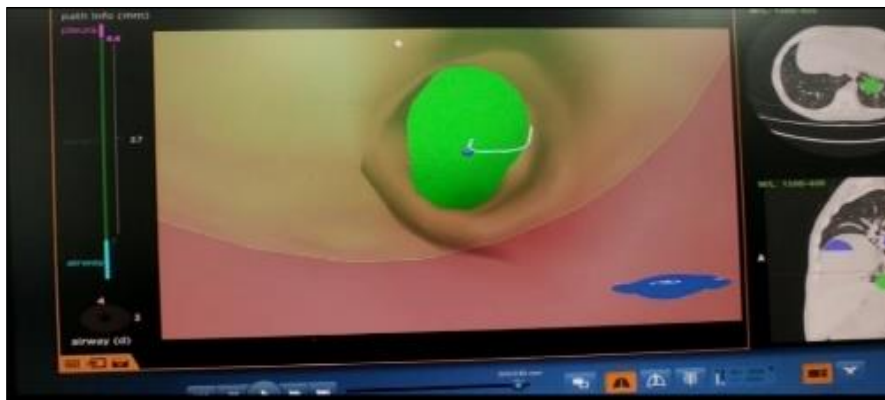Fig. 2E   Fig. 2F   Fig. 2G

Fig. 2H   Fig. 2I   Fig. 2J

Fig. 2K

Figure 2 : Computed tomography (CT) image of peripheral lung lesion (Fig. 2E, 2F ,2G) , Navigation is facillated by an electromagnatic with 3D technique (Fig. 2H) , tracking system that detected a position sensor with small size flexible bronchoscopy (Fig. 2I, 2J) to localize the site of periperal nodule or mass assisted with fluoroscopy (Fig. 2K) as that example for navigation bronchoscopy &fluoroscopy was done for male patient 60 years old complained of dyspnoea, dry cough, loss of weight presenting with peripheral lung mass in Chest CT and diagnosed as Tuberculosis.

Comparative studies:

The 394 patients were classified into 2 independent groups: **as some patients had > 1 intervention**

- Diagnostic endoscopy group (368 patients) (93.4%).
- Therapeutic endoscopy group (77 patients) (19.5%).

Table 5: Comparison between the 2 groups as regards Endoscopy data using Mann-Whitney's U and Chi square tests.

Variable		Diagnostic Endoscopy group (368)	Therapeutic Endoscopy group (77)	Chi square test P value
Previous Endoscopy	+ve	37 (10.1%)	44 (57.7%)	< 0.0001**
Type of anaesthesia	GA	214 (58.2%)	74 (96.2%)	= 0.0001**
	LA	154 (41.8%)	3 (3.8%)	
Type of Endoscopy	EBUS	51 (13.9%)	0 (0%)	< 0.0001**
	FOB	220 (59.8%)	17 (22%)	
	Lung point	13 (3.5%)	0 (0%)	
	RB	40 (10.9%)	60 (78%)	
	Thoracoscopy	44 (12%)	0 (0%)	
Complication during Endoscopy	+ve	19 (5.2%)	11 (15.4%)	= 0.031*

Comparative study between the 2 groups revealed; highly significant increase in (previous bronchoscopies, GA, rigid bronchoscopy) and complications in therapeutic group; compared to diagnostic group (p < 0.05 respectively).

Table 6: Comparison between the 2 groups as regards Diagnostic and therapeutic yield using Mann-Whitney's U and Chi square tests.

Variable		Diagnostic Endoscopy group (368)	Therapeutic Endoscopy group (77)	Chi square test P value
Therapeutic success	+ve	0 (0%)	50 (65%)	< 0.0001**
Diagnostic success	+ve	235 (63.9%)	13 (50%)	= 0.1579

Comparative study between the 2 groups revealed; highly significant therapeutic success, (p < 0.0001), indicate the safety of intervention with bronchoscopy in cost benefits with therapeutic intervention as debulking tumour with rigid bronchoscopy, removal of foreign body, instillation of antibiotics or antifungal and palliative management as stent insertion with rigid bronchoscopy.

DISCUSSION:

In this Recent study of 394 patients undergo different endoscopies performed at teaching bronchoscopy centre in Ain Shams University in a period of 12 months from July 2022 to end of July 2023.

We also in this period had a start a curve of work with lung point with navigational technique with Indian experience in chest bronchoscopy and interventional pulmonology, sharing that in our tertiary teaching hospital in Egypt.

We found as overall; the mean age of all patients was (48 ± 18.4) years. Regarding gender of the patients, the (42.1%) of patients were females; and (57.9%) were males, with (81.7%) of patients had live in urban areas, and (18.3%) live in rural areas.

Additive associated data; the average smoking index was (9), with (1.3%) of patients were ex-smokers and (23.4%) were smokers, with (26.4%) suffered co-morbidities.

According to Type of endoscopy, (12.9%) of patients had EBUS, (56.1%) had fibreoptic bronchoscopy, (3.3%) had Lung point, (16.5%) had rigid bronchoscopy, and (11.2%) had thoracoscopy.

Regarding bronchoscopy; (93.4%) of patients had diagnostic endoscopy, and (6.6 %) had therapeutic endoscopy, regarding diagnostic interventions; (28.9%) of patients had bronchial biopsies, (61.9%) had bronchial lavage, (42.9%) had bronchoalveolar Lavage, (22.1%) had TBNA, and with Also thoracoscopy (26.9%) had pleural biopsy.

While the fibreoptic bronchoscopy diagnostic yield; (54.8%) had diagnostic success, with (28.1%) had malignancy diagnosis, (6.8%) had sarcoid diagnosis, (12.7%) had bacterial pneumonia diagnosis, (6.8%) had TB diagnosis, and (1.8%) had fungal diagnosis.

According to the most recent intervention, diagnostic yield of EBUS bronchoscopy; (80.4%) had diagnostic success, with (43.1%) had malignancy diagnosis, (25.5%) had sarcoid diagnosis, (2%) had bacterial pneumonia diagnosis, and (9.8%) had TB diagnosis. Also, diagnostic yield of navigation bronchoscopy; (76.9%) had diagnostic success, with (61.5%) had malignancy diagnosis, (7.7%) had sarcoid and TB diagnosis.

By using ROC-curve analysis, EBUS bronchoscopy predicted patients with diagnostic success, with poor (60%) accuracy, sensitivity 80% and specificity 39% (p < 0.05). While ROC-curve analysis, EBUS bronchoscopy predicted patients with sarcoid diagnosis, with poor (60%) accuracy, sensitivity 25% and specificity 95% (p < 0.05).

Also, ROC-curve analysis, EBUS bronchoscopy showed non-significant predictive values regarding all the remaining diagnoses (p > 0.05).

This was matched with *Gerard A et al.* [9] where they evaluate of diagnostic yield of bronchoscopy with different modalities as, prospective multicentre trial. The yield of bronchoscopy varied greatly according to physician, the patients' clinical/radiographic features, and the type of procedure performed. Of the procedures performed, EBUS-TBNA was the most likely to provide a diagnosis.

Where the yield increases with US guided TBNA and using fluoroscopy with expert physician as A total of 687 patients were included from 28 sites. Overall diagnostic yield was 69%; 80% for EBUS, 55% for bronchoscopy with biopsy ± fluoroscopy, 57% for electromagnetic navigation, and 74% for combination procedures (P < .001), 70% a malignant diagnosis and 28% of those with a benign diagnosis required secondary procedures to establish a diagnosis.

In our study: diagnostic yield of rigid bronchoscopy; (60%) had diagnostic success, with (49.2%) had malignancy diagnosis, (1.5%) had sarcoid diagnosis, (6.2%) had bacterial pneumonia diagnosis, (3.1%) had fungal diagnosis, and (1.5%) had hydatid diagnosis. With highly significant therapeutic success, (p < 0.0001), indicate the safety of intervention with bronchoscopy in cost benefits with therapeutic intervention as debulking tumour with rigid bronchoscopy, removal of foreign body, instillation of antibiotics or antifungal and palliative as stent insertion for tracheal stenosis with rigid bronchoscopy, cryo technique, electrocautery and different modalities.

Therapeutic endoscopic interventions; (4.1%) of patients had debulking, (2%) had stent insertion, and (0.5%) had tracheal dilatation, FB removal 5%, drug instillation 12.6%.

Matched with *Misauq Mazcuri et al.,* [12] *as* they confirm not only diagnostic yield of rigid but also in emergency thoracic procedure to removal the foreign body with different age, as live saving, also elective and therapeutic intervention as debulking , in our

study also had an antifungal instillation also was done, endobronchial injection with rigid in case with malignant cavity diagnosed as invasive aspergillosis.

Also, an additive important Intervention in bronchoscopy unit which are the thoracoscopy was done as a synergetic or an additive with fibreoptic bronchoscopy, which was its diagnostic yield; (84.1%) had diagnostic success, with (86.2%) had malignancy diagnosis, (2.3) had parapneumonic effusion diagnosis, (13.6%) had TB diagnosis.

Agreement with *Alberto Valsecchi et al.,*[1] who said that medical thoracoscopy had a great diagnostic yield that can be improved by practice, permitting to achieve a specific histological diagnosis in about 80% of patients.

The 394 bronchoscopy patients were classified according to bronchoscopy usage into 2 independent groups: **as some patients had > 1 intervention**, diagnostic Endoscopy group 368 patients (93.4%)**,** therapeutic Endoscopy group 77 patients (19.5%).

Comparative study between the 2 groups revealed; highly significant increase with (patients with previous endoscopy, patients who undergo GA, and rigid bronchoscopy), and patient undergo to therapeutic endoscopy group compared to diagnostic bronchoscopy group (p < 0.05 respectively).

Complication was as intraoperative bleeding, persistent hypoxia, pneumothorax tachycardia, hypertension, laryngospasm and bronchospasm was 5.2% in diagnostic group and 15.4 % in therapeutic group as total complication 7.6%.

Mortality was only one case in this year, male with frank haemoptysis for 2 sets of rigid bronchoscopies to control bleeding of invasive undiagnosed lung cancer as invasive to pericardium and major vessels on HRCT, with consultation of cardiothoracic surgeons for urgent pneumonectomy, deteriorating case who died in ICU.

Matched with *Credle WF et al., (6)* they described Since 1960s, where published rates of complication from fibreoptic bronchoscopy have ranged from 0.1 to 11%, with mortality generally reported between 0 and 0.1% as no definitive consensus exists on the classification of bronchoscopic complications.

Drummond M et al., [8] they also confirm that unlike fibreoptic bronchoscopy, rigid bronchoscopy is performed in the operating room under general anaesthesia, that adds the potential complication of procedure and anaesthesiologist sharing the airway.

Limitations of Study:

We need a special analytic study for each new modalities for detecting the safety versus diagnostic yield with outcome specifically and comparative studies in between each one and its conventional technique, which is already in progress.

List of abbreviations:

GA   : General anaesthesia
LA   : Local anaesthesia
EBUS   : End-bronchial Ultrasound guided bronchoscopy
FOB   : Fibre-optic bronchoscopy
RB   : Rigid bronchoscopy
TBNA   : Trans-bronchial needle biopsy
BL   : Bronchial lavage
BAL   : Bronchoalveolar lavage
BB   : bronchial biopsy
FB   : foreign body

Conflict of interest:

The author declares that there is no conflict of interest.

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**التطبيق العملي والنتائج لمناظير الشعب الهوائية وما استجد فيها في وحده المناظير لأمراض الصدر بقسم الامراض الصدرية لجامعه عين شمس
(بما في ذلك التحديث الأخير في أمراض الرئة التداخلية)**

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الخَلفية الرئيسية: مجال مناظير الشعب الهوائية يسير بخطى سريعة. وتحل النُهُج التشخيصية الأقل اختراقا إلى الحد الأدنى محل النُهُج الجراحية الأكثر خطورة لتشخيص أمراض الصدر وسرطان الرئة. وتساعد الطرق حديثة العهد في الكشف المبكر، وتسمح بالعلاج المبكر، وتؤثر من الناحية المثالية على نتائج المرضى ومن أجل تحسين كفاءه الحياة. وقد أدخلت هذه الطرق بهدف زيادة النتائج التشخيصية من النسيج من الشعب الهوائية والغشاء البلوري؛ وتقتصر هذه الابتكارات على المراكز المتخصصة. ونهدف في هذه الدراسة إلى تقييم النتائج، بما في ذلك سلامة تقنيات فحص القصبات الهوائية الروتينية، بما في ذلك الطرق حديثة العهد الحيوية للشُعب الهوائية بمختلف الطرق من العينات ومختلف انواع المناظير مع المؤشرات المختلفة في وحدة المناظير والتداخلية للشعب الهوائية في مستشفى جامعة عين شمس.

المنهجية: وأُجريت دراسة تناظرية شاملة في وحده المناظير والتداخلية لأمراض الصدر في مستشفى جامعة عين شمس التابع لقسم الامراض الصدرية من تموز/يوليه 2022 إلى نهاية تموز/يوليه 2023، شملت 394 مريضاً يترددون على مستشفى جامعه عين شمس الجامعي . وأُشير إلى الحالات التي يجري فيها المريض تقييماً قبل إجراء تقييم جراحي لنوعين مختلفين من التخدير، وأجريت متابعة داخل كامل وفحص العملية مع إجراء تقييم ومتابعة لما بعد العملية. وقد خضعت جميعها لتاريخ مرضى سريري، ورصدت فيما يتعلق بالتحقيقات الإجرائية، وتفاصيل الإجراءات، وتقنيات أخذ العينات، والمضاعفات، وأخيراً، تمت متابعة المرضى فيما يتعلق بنتائجهم المرضية والجرثومية.

النتائج: وفيما يتعلق بالمرضى، (42.1 في المائة) الإناث؛ و (57.9 في المائة) الذكور، مع (81.7) في المائة.

تم توضيح النسب والنتائج بالجداول المرفقة للبحث بنسبه الامراض والنتائج التشخيصية والمزارع البكتيرية والفطرية والدرنية ونسبه المشاكل وحدوث المخاطر

الملخص: وتُعد تقنية المنظار الشعبي المرن الروتيني نتيجة تشخيصية مثالية في الممارسة السريرية الحالية. وهذا الإجراء أكثر فائدة في التشخيص عندما تم اضافه التقنيات الجديدة كالسونار بالمنظار وجهاز تتبع الهدف حيث يقترن بطرق جديدة أدخلت لزيادة دقه النتائج التشخيصية؛ وهي تقتصر على مراكز متخصصة من الناحية العملية الفعلية الواقع مع تحقيق أوجه التقدم الهامة للمناظير التشخصية والعلاجية ووضعها في سياق سريري أقل تعقيدات وأفضل سلامة مع التحديات التشخيصية الحالية وأيضا المناظير العلاجية وقدرتها على تحقيق نتائج افضل للمريض.