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Endoscopic Ultrasound: A New Hope for Patients: (Short communication)

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I found that the publication on "Endoscopic Ultrasound (EUS): A New Hope for Patients" by Perveen et al is very interesting indicated that EUS has become an indispensable tool in the evaluation of gastrointestinal tract and the surrounding tissues and organs in abdomen and mediastinum. The layers of the intestinal wall, as well as nearby structures like lymph nodes and blood vessels, can all be learned about using the EUS.[1]

Two previous study about EUS[2,3] highlighted that " To collect images and data about the digestive tract and the nearby tissues and organs, EUS combines endoscopy and ultrasound. The ultrasonic (US) probe at the end of an endoscope is used. While ultrasound produces images of structures close to the digestive tract, such as the liver, gallbladder, pancreas, and aorta, endoscopy visualizes the digestive tract. It enables accurate imaging of extraluminal structures as well as gut layers. Since the invention of endoscopic US in 1980, numerous symposiums and studies have assessed the use of the EUS technique in clinical practice."

Also, Perveen et al revealed that "Even while an EUS cannot completely replace a gastroscope during a typical endoscopic operation, it is quickly becoming the most significant interventional development."

One of the important points highlighted regarding EUS Doppler US can be used to examine the blood flow inside blood vessels, and tissue samples can be taken by inserting a fine needle aspiration (FNA) needle into suspected tumors or enlarged lymph nodes. The use of EUS for cancer staging is growing in importance. It can provide staging-relevant details on the extent of the cancer's penetration and spread to nearby tissues and lymph nodes.[1]

The design of an echoendoscope can use a curvilinear or radial array system. It is a modified endoscope with the capacity to capture images using both optical and ultrasonic technology. By utilizing a probe with a water-filled balloon at its tip, acoustic coupling with the mucosa can be accomplished.[1]

EUS-FNA needles are less precise than 19G Trucut biopsy needles for the examination of submucosal lesions and lymphomas.[4]When the echoendoscope is angulated, especially in the second section of the duodenum, these devices cannot function properly. [4]

Pancreaticogastrostomy, hepatico-gastrostomy, pseudocyst drainage, abscess drainage, and other disorders are just a few of the conditions where EUS-guided transluminal drainage techniques are quickly becoming accepted as a successful treatment.[5,6]

One previous study discussed the role of EUS drainage guided of gallbladder revealed that "Technically speaking, cholecystenterostomy guided by EUS is possible.It appears secure, efficient, and manageable in the hands of professionals. In the situations detailed in the literature, every patient made a sufficient recovery in a short amount of time without experiencing any major procedure-related problems. We have no doubt that this surgery could provide terminally ill patients with a higher quality of life than previous non-surgical methods like percutaneous cholecystostomy." [7]

Other studies showed that; successful EUS-guided cholecystenterostomies have been performed on a total of 13 patients in two published series and a brief report with one patient. These patients all experienced minor problems and quickly improved clinically.[8,9]

Technical success, procedure-related complication rate, or recurrence rate were unaffected by the kind of EUS method used or the presence of an infection. According to two earlier studies, infection had no impact on the frequency of complications or recurrences. [10,11]

Another study also highlighted the importance of EUS role in diagnosis of pancreatic pseudocysts and concluded that; single-step EUS-guided transmural drainage of pancreatic pseudocysts showed a high technical success rate, a high initial clinical success frequency, a low procedure-related complication rate, and a low recurrence rate. In addition, there was no mortality. These findings suggest that single-step EUS-guided transmural drainage may be the optimal treatment for pseudocysts.[12] It is cost-effective since it offers a greater variety of accurate and generally safe therapy choices.

Interventional EUS provides cutaneous fistula-free minimally invasive draining treatments and long-lasting analgesia for palliation. Future developments in Interventional EUS will expand the field and enhance the contribution of GI endoscopy.[1]

Evaluating bile duct anomalies such as stricture or dilatation, bile duct or gallbladder stones, and bile duct, gallbladder, or liver cancers According to a cost-benefit analysis, EUS has a sensitivity range of 89–94% and a specificity of 94%, making it the most valuable test for choledocholithiasis that is questionable. 26,27 However, because to its therapeutic benefits, ERCP is still preferred for patients with a high (>55%) likelihood of choledocholithiasis.[13]

The best method for diagnosing cancer is frequently EUS. It can properly and thoroughly define cancers that are present in the esophagus wall, gastric wall, mediastinum, bile ducts, and pancreas. To confirm the existence of cancer cells, FNA can be used.[1]

Malignancies of the esophagus, stomach, pancreas, bile ducts, and rectum are all included in the staging of gastrointestinal cancers.Finding the extent of these malignancies with EUS is helpful (staging).In the assessment of treatment, contrast enhanced endoscopic ultrasound CEUS could be utilized to determine how tumor angiogenesis responded to antiangiogenic medications response.[14]

Recent study supported all previous points and added a new benefit of EUS; Patients with suspected malignant ascites benefit from the excellent sensitivity and specificity of EUS guided random omentum biopsy for the diagnosis of PC. With this technique is safe for evaluating malignancies using EUS. It would be wise to conduct more research contrasting this method with surgical staging and percutaneous ascitic fluid aspiration.[15]

Another study revealed that; A technically viable, secure, and least invasive alternative for tissue diagnostics is EUS-FNB of peritoneal lesions. A hypoechoic lesion is the ideal kind of lesion to provide a high yield. Additionally, it was discovered that EUS-FNB had a high rate of tissue acquisition that was suitable for immunohistochemistry. In most individuals, the method can replace a more invasive diagnostic laparoscopy.

The comparison between EUS-FNB and EUS-FNA in patients with abdominal lymphadenopathy is supported by our research' solid data. Based on our findings, patients with suspected malignancy should be sampled using EUSFNB rather than traditional EUS-FNA.[16]When compared to EUS-FNA, EUS-FNB demonstrated better diagnostic sensitivity and accuracy. Nothing untoward happened with either modality. The outcomes thus justify the use of EUS-FNB for sampling abdominal lymph nodes.[16]

Conclusion

Currently, EUS is mostly used to diagnose gastrointestinal luminal and extraluminal disorders, stage cancers, fluid collections, abscesses, and clogged biliary and pancreatic ductal systems and for a small number of therapeutic purposes. A high technical success rate, a high initial clinical success frequency, a low incidence of procedure-related complications, and a low recurrence rate were all seen with EUS-guided transmural drainage of pancreatic pseudocysts. There was no mortality, as well. The current limits of the equipment and advances in picture interpretation will be resolved in the near future, further enhancing the contribution of EUS.

Finally, once the fundamental technologies are made available on the market, EUS-guided therapies like radiofrequency ablation may develop into standard practices.

Conflict of Interest The author stated that the current study was conducted without any conflicts of interest.

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Author Contribution As a single author I wrote the hole article, revised, read and approved the final version.

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