

OBSTRUCTIVE JAUNDICE: ETIOLOGY AND PATTERN OF PRESENTATION

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Abstract: Surgical jaundice mainly occurs due to obstruction in any duct from the liver to the gall bladder and then the small intestine. It can be divided into intra-hepatic or extra-hepatic causes. Biliary stones, iatrogenic or ischemic biliary stricture, pseudo-pancreatic cysts, carcinoma of the head of the pancreas, and perianchillary carcinomas are common pathologies of obstructive jaundice. Common bile duct stones account for 10-15% of biliary stone disease and are the most common cause of obstructive jaundice. Obstructive jaundice presents with a wide range of associated features. Ultrasonography, MRCP, and ERCP are the primary diagnostic tools for diagnosing and managing obstructive jaundice, in addition to blood tests. This study aims to determine the pattern of presentation and causes of obstructive jaundice. This observational, retrospective study was conducted in general surgery and surgical oncology unit 2 of Sheikh Zayed Hospital, Lahore. The study lasted from January 2022 to April 2023. A non-probability convenience sampling technique was used. A total of 55 patients with obstructive jaundice were presented in the study area in a defined period, which included 17 (30.90%) males and 38 (69.09%) females. The mean age was 49 years, with age ranges from 28 years to 80 years. 13 (23.66%) patients were found to have malignant disease, whereas 42 (76.33%) patients presented with benign disease. The most common malignant cause of obstructive jaundice was carcinoma head of the pancreas (10.90%), whereas the least common causes were cholangiocarcinoma (1.82%), carcinoma gall bladder (1.82%) and malignant biliary stricture (1.82%). The most common benign cause and overall most common cause of obstructive jaundice was choledocholithiasis (32.73%), followed by referred biliary injuries (18.18%). The most common clinical feature presented in benign causes of obstructive jaundice was jaundice (100%), followed by itching (71.4%) and abdominal pain (64.28%). The most common clinical feature in malignant causes of obstructive jaundice was jaundice (100%), followed by loss of appetite (84.61%) and weight loss (84.61%). Female was the most common gender presented with obstructive jaundice. The most common benign cause of obstructive jaundice was Choledocholithiasis, while the most malignant cause was carcinoma head of the pancreas.

Keywords: Obstructed Jaundice, Choledocholithiasis, Carcinoma Head of Pancreas

Introduction

One of the most important causes of mortality and morbidity in the general surgery department is obstructive jaundice. Surgical jaundice mainly occurs due to obstruction or blockage in any duct from the liver to the gallbladder and then the small intestine (Pavlidis and Pavlidis, 2018). Obstructive jaundice can be caused by intrahepatic or extra-hepatic causes (Abbas et al., 2016). Surgical jaundice is usually divided into benign and malignant causes. Biliary stones, iatrogenic and ischemic biliary strictures, pseudo-pancreatic cysts, chronic pancreatitis, choledochal cysts, liver abscesses, and parasitic infections are common benign causes of obstructive jaundice. Carcinoma head of the pancreas, perianchillary carcinoma, cholangiocarcinomas, metastatic liver disease, carcinoma gall bladder, and metastatic portal lymphadenopathies are common malignant causes of obstructive jaundice (Vaghholkar, 2020). Free drainage of bile and patent biliary ducts are two critical factors in the normal functioning of the liver. When biliary obstruction occurs, substances usually excreted in the bile accumulate in the vascular system. These substances have toxic systemic effects. Therefore, these patients are prone to developing malnutrition, acute renal failure, infectious complications, compromised cardiovascular systems,

hypovolemia, and coagulopathies (Assimakopoulos et al., 2007). The most common cause of obstructive jaundice is choledocholithiasis. Common bile duct stones account for 10–15% of biliary stone disease (Park, 2018). Obstructive jaundice presents with a wide range of associated features, including abdominal pain, pruritis, yellowish discoloration of hands, vomiting, fever, melanic stool, and hematemesis (Shukla et al., 2018).

Obstructive jaundice, or surgical jaundice, is a clinical sign and not a definitive diagnosis, so early diagnosis and prompt treatment are required (Singh et al., 2014). Invasive investigation usually results in ascending infections, so a non-invasive approach is required, including ultrasonography, computed tomography, MRCP, and a percutaneous trans-hepatic cholangiogram (Clarke et al., 1970). Initial management of obstructive jaundice usually includes hydration, prophylaxis antibiotics, vitamin K, fresh frozen plasma, and good nutritional support. This is followed by early drainage of biliary obstruction, either in common bile duct stenting or percutaneous biliary drainage (Briggs and Peterson, 2007).

Common etiologies of obstructive jaundice vary from center to center or region to region. Only a few studies were

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conducted on this topic, so to increase the literature and subside the lack of information about the major causes of surgical jaundice, this research was conducted to determine the pattern and causes of obstructive jaundice.

Methodology

This observational, retrospective study was conducted in general surgery and surgical oncology unit 2 of Sheikh Zayed Hospital, Lahore. The study lasted from January 2022 to April 2023. A non-probability convenience sampling technique was used. The study included all those patients who presented with signs and symptoms of obstructive jaundice. The diagnosis of obstructive jaundice was based on a history, examination, and liver function test. Baseline investigations were done in all patients. CT scans, MRCP, PTC, and ERCP were done in selective patients as per requirement. Those patients whose history, examination, and investigation didn't support the diagnosis of obstructive jaundice were eliminated.

Results

A total of 55 patients with obstructive jaundice were presented in the study area in a defined period, which included 17 (30.90%) males and 38 (69.09%) females (Figure 1). The mean age was 49 years, with age ranges from 28 years to 80 years.

13 (23.66%) patients were found to have malignant disease, whereas 42 (76.33%) patients presented with benign disease (Figure 2).

The most common malignant cause of obstructive jaundice was carcinoma head of the pancreas (10.90%), whereas the least common causes were cholangiocarcinoma (1.82%), carcinoma gall bladder (1.82%) and malignant biliary stricture (1.82%). 7.27% of patients were presented with peri-ampullary carcinomas. The most common benign cause and overall most common cause of obstructive

jaundice was choledocholithiasis (32.73%), followed by referred biliary injuries (18.18%). The least common benign cause of obstructive jaundice was choledocho-enteric fistulae (1.82%), followed by benign biliary strictures (3.64%) (Table 1).

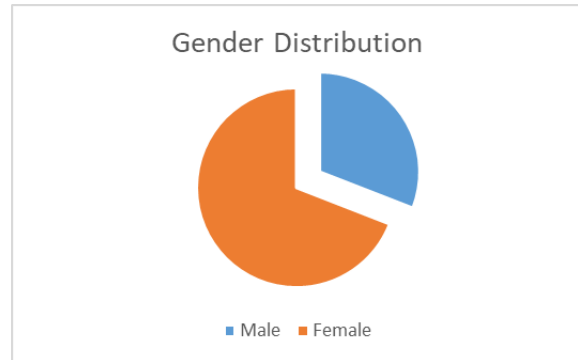


Figure 1: Distribution of gender among study population

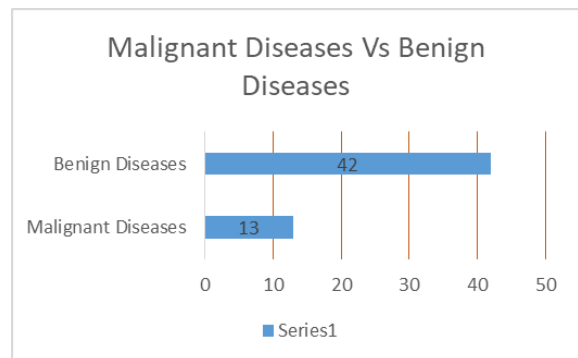


Figure 2: Distribution of malignant disease versus benign diseases among study population

Table No. 01 Causes of Obstructive Jaundice

Cause	Frequency	Percentage
Malignant Diseases		
Carcinoma head of Pancrease	6	10.90%
Periampullary Carcinoma	4	7.27%
Carcinoma Gallbladder	1	1.82%
Cholangiocarcinoma	1	1.82%
Malignant Biliary Stricture	1	1.82%
Benign Diseases		
Choledocholithiasis	18	32.73%
Chole dochal Cyst	3	5.45%
Mirizzi Syndrom	8	14.55%
Choledocho-enteric Fistula	1	1.82%
Benign Biliary Stricture	2	3.64%
Biliary Injuries	10	18.18%
Total	55	100%

The most common clinical feature presented in benign causes of obstructive jaundice was jaundice (100%), followed by itching (71.4%) and abdominal pain (64.28%). The least common clinical feature in benign causes of obstructive jaundice was mass per abdomen (2.83%), followed by dark urine (35.71%). The most common

clinical feature in malignant causes of obstructive jaundice was jaundice (100%), followed by loss of appetite (84.61%) and weight loss (84.61%). The least common clinical feature in malignant causes of obstructive jaundice was fever (8%), followed by mass per abdomen (38.46%) (Table 2).

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Table No.02 Pattern of Presentation

Clinical Features	Malignant Disease		Benign Diseases	
	Frequency	Percentage	Frequency	Percentage
Jaundice	13	100%	42	100%
Abdominal Pain	10	76.92%	27	64.28%
Itching	8	62%	30	71.42%
Fever	1	8%	17	40.47%
Loss of Appetite	11	84.61%	23	54.76%
Weight Loss	11	84.61%	21	50.00%
Steatorrhea	8	62%	16	38.09%
Dark Urine	9	69.23%	15	35.71%
Mass per Abdomen	5	38.46%	1	2.38%

Discussion

Obstructive jaundice occurs due to biliary obstruction and is a commonly encountered biliary pathology on the surgical floor. Obstructive jaundice can be divided into intrahepatic and extra-hepatic causes, which include biliary stones, parasitic infections, and neoplastic diseases.

In this study, most of the patients with obstructive jaundice were females (69.09%) as compared to males (30.90%). The mean age of presentation was 49 years, with age ranges from 25 years to 80 years. Similar results were seen with the study by Khurram at EL, which showed that obstructive jaundice was most commonly found in females, with a male-to-female ratio of 1:3 in benign disease and 1:1.2 in malignant disease. It also showed that the mean age of presentation for benign and malignant diseases was 42.04 years and 56.38 years, respectively. These results were comparable to those of our study. (Siddique et al., 2008). Similar results were shown by Tariq w.k.a. The most common presentation of patients with obstructive jaundice was female, with a mean age of 49 years (Khanzada et al., 2008). In contrast to our study, Gupta AK at EL showed that the most common gender presented with obstructive jaundice was male (Gupta et al., 2017). The increased frequency of obstructive jaundice in the female gender may be due to the overall increase prevalence of gall bladder stones in the female gender.

According to our research, benign disease accounted for 76.33% cases of obstructive jaundice, while malignant diseases accounted for 23.66% of cases. These findings contrasted with those of Umesh Chandra DG at EL, who demonstrated that malignancy accounted for the majority of cases of obstructive jaundice (66.7%). (Umeshchandra and Maitra, 2015). Similarly, a study conducted in Pakistan on 60 patients with obstructive jaundice showed that the most common cause of obstructive jaundice was malignant disease (56.66%) (Siddique et al., 2008). Sharma, MP, at EL, a study on 429 patients found that the malignant cause of obstructive jaundice was 75.3%. These results also contrast with our study (Sharma and Ahuja, 1999).

In our research, the most common malignant cause of obstructive jaundice was carcinoma of the head of the pancreas (10.90%), followed by periampullary carcinoma (7.27%). Cancerous gallbladder, cholangiocarcinoma, and malignant biliary stricture account for 1.82%. Similar results were shown by Gupta AK at EL, in which carcinoma of the head of the pancreas was the leading cause of obstructive jaundice (Gupta et al., 2017). In the study, Umesh Chandra DG found that the most common cause of malignant obstructive jaundice was carcinoma of the head

of the pancreas (Umeshchandra and Maitra, 2015). These results were also comparable to those of our study. Siddique K. et al. showed that carcinoma of the head of the pancreas was the most common cause of malignant jaundice (Siddique et al., 2008). This result was also comparable to our study. Another study on 241 patients showed that the majority of the patients with obstructive jaundice were due to carcinoma of the head of the pancreas (Björnsson et al., 2008). Research on 82 patients conducted in China showed that carcinoma gallbladder was the most common cause of malignant jaundice. The result of this study was in contrast to ours (Feng et al., 2003).

In our study, the most common benign pathology that causes obstructive jaundice was choledocholithiasis (32.73%), followed by referred biliary injuries (18.18%). Similar results were found by Tariq at EL, Africa Beckle at EL, Gupta AK at EL, and Siddique K at EL. According to these studies, the leading cause of obstructive jaundice in benign diseases was choledocholithiasis, with frequencies of 35%, 41%, 76.92%, and 35%, respectively (Bekele and Yifru, 2000; Gupta et al., 2017; Khanzada et al., 2008; Siddique et al., 2008).

In this research, we found that the most common clinical features of the patient with obstructive jaundice were weight loss (84.61%) and loss of appetite (84.61%) in malignant causes, whereas abdominal pain (64.28%) and itching (71.42%) in benign causes after clinical jaundice (100%). In a study, Siddique K. found that weight loss and loss of appetite were more common in malignant cases, whereas abdominal pain was most common in benign cases. These results were comparable to those of our study (Siddique et al., 2008). Similar results were seen in Umeshchandra et al. and Tariq w k at el. (Khanzada et al., 2008; Umeshchandra and Maitra, 2015).

Conclusion

Female was the most common gender presented with obstructive jaundice, with a mean age of 49 years. The most common benign cause of obstructive jaundice was Choledocholithiasis, while the most malignant cause was carcinoma of the head of the pancreas. Jaundice was present in almost all cases of benign and malignant diseases. However, weight loss and loss of anorexia were common in malignant diseases, and abdominal pain was joint in benign disease.

Declarations

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Data Availability statement

All data generated or analyzed during the study are included in the manuscript.

Ethics approval and consent to participate

Approved by the department Concerned.

Consent for publication

Approved

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Conflict of interest

The authors declared absence of conflict of interest.

Author Contribution**MUHAMMAD ALI ASKARI**

Conception of Study, Development of Research Methodology Design, Study Design,, Review of manuscript, final approval of manuscript

Coordination of collaborative efforts.

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Coordination of collaborative efforts.

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Manuscript revisions, critical input.

Coordination of collaborative efforts.

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Data acquisition, analysis.

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Coordination of collaborative efforts.

References

- Abbas, M. W., Shamshad, T., Ashraf, M. A., and Javaid, R. (2016). Jaundice: a basic review. *Int J Res Med Sci* **4**, 1313-9.
- Assimakopoulos, S. F., Scopa, C. D., and Vagianos, C. E. (2007). Pathophysiology of increased intestinal permeability in obstructive jaundice. *World journal of gastroenterology: WJG* **13**, 6458.
- Bekele, Z., and Yifru, A. (2000). Obstructive jaundice in adult Ethiopians in a referral hospital. *Ethiopian Medical Journal* **38**, 267-275.
- Björnsson, E., Gustafsson, J., Borkman, J., and Kilander, A. (2008). Fate of patients with obstructive jaundice. *Journal of Hospital Medicine: An Official Publication of the Society of Hospital Medicine* **3**, 117-123.
- Briggs, C., and Peterson, M. (2007). Investigation and management of obstructive jaundice. *Surgery (Oxford)* **25**, 74-80.
- Clarke, J. S., Barrett, P., Fonkalsrud, E. W., Johnson, J. N., Longmire Jr, W. P., Pops, M. A., Rösch, J., Steckel, R. J., and Webber, M. M. (1970). Diagnosis of obstructive jaundice. *California Medicine* **112**, 44.
- Feng, G.-H., Cai, Y., Jia, Z., Yang, D.-Q., Chen, H., Jin, H.-C., Yu, Q.-H., Zhu, W., and Wang, C.-X. (2003). Interventional therapy of malignant obstructive jaundice. *Hepatobiliary & Pancreatic Diseases International: HBPD INT* **2**, 300-302.
- Gupta, A. K., Singh, A., Goel, S., and Tank, R. (2017). Profile and pattern of obstructive jaundice cases from a tertiary care teaching hospital of Uttar Pradesh. *International Surgery Journal* **4**, 743-746.

- Khanzada, T. W., Samad, A., Memon, W., and Kumar, B. (2008). Etiological spectrum of obstructive jaundice. *Journal of Postgraduate Medical Institute* **22**.
- Park, C.-H. (2018). The management of common bile duct stones. *The Korean journal of gastroenterology* **71**, 260-263.
- Pavlidis, E. T., and Pavlidis, T. E. (2018). Pathophysiological consequences of obstructive jaundice and perioperative management. *Hepatobiliary & Pancreatic Diseases International* **17**, 17-21.
- Sharma, M., and Ahuja, V. (1999). Aetiological spectrum of obstructive jaundice and diagnostic ability of ultrasonography: a clinician's perspective. *Tropical gastroenterology: official journal of the Digestive Diseases Foundation* **20**, 167-169.
- Shukla, S., Kharat, P. R., and Kumar, K. (2018). Clinicopathological study on patients presenting with obstructive jaundice. *International surgery journal* **5**, 705-710.
- Siddique, K., Ali, Q., Mirza, S., Jamil, A., Ehsan, A., Latif, S., and Malik, A. Z. (2008). Evaluation of the aetiological spectrum of obstructive jaundice. *J Ayub Med Coll Abbottabad* **20**, 62-6.
- Singh, A., Mann, H. S., Thukral, C. L., and Singh, N. R. (2014). Diagnostic accuracy of MRCP as compared to ultrasound/CT in patients with obstructive jaundice. *Journal of clinical and diagnostic research: JCDR* **8**, 103.
- Umeshchandra, D., and Maitra, J. (2015). Clinical study of obstructive jaundice at Basaveshwar Teaching and General Hospital, Gulbarga. *SAS J. Surg* **1**, 105-118.
- Vagholkar, K. (2020). Obstructive jaundice: understanding the pathophysiology. *Int J Surg Med* **6**, 26-31.



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