e-ISSN: 0976-822X, p-ISSN:2961-6042

Available online on http://www.ijcpr.com/

International Journal of Current Pharmaceutical Review and Research 2026; 18(5); 1615-1620

Original Research Article

# Early Kasai Procedure and Long-Term Survival in Biliary Atresia

**Gaurav Jha[1], Pranay Kumar[2], Kumar Ashish[3]**

[1]Senior Resident, Department of General Surgery, Patna Medical College & Hospital, Patna, Bihar, India
[2]Assistant Professor, Department of Pediatric Surgery, Patna Medical College & Hospital, Patna, Bihar, India
[3]Assistant Professor, Department of Pediatric Surgery, Patna Medical College & Hospital, Patna, Bihar, India

**Received: 22-03-2026 / Revised: 24-04-2026 / Accepted: 28-05-2026**
**Corresponding Author: Dr. Kumar Ashish**
**Conflict of interest: Nil**

**Abstract:**

**Background:** Biliary atresia is a progressive fibro-obliterative disease of the extrahepatic biliary tree and a major cause of neonatal cholestasis. Early Kasai portoenterostomy is considered the standard initial surgical intervention and is associated with improved native liver survival.

**Aim:** To evaluate the impact of early Kasai procedure on long-term survival among biliary atresia patients treated at PMCH.

**Methods:** This retrospective observational study included 30 patients diagnosed with biliary atresia who underwent Kasai portoenterostomy over a period of 8 months at PMCH. Clinical records were reviewed for demographic profile, age at surgery, postoperative jaundice clearance, complications, and survival outcomes. Statistical analysis was performed using chi-square test and Student's t-test, with $p < 0.05$ considered significant.

**Results:** Out of 30 patients, 18 (60%) underwent Kasai procedure before 60 days of life, while 12 (40%) underwent surgery after 60 days. Jaundice clearance was achieved in 72.2% of early surgery patients compared to 33.3% in late surgery patients ($p=0.03$). Native liver survival at follow-up was significantly higher in the early surgery group (77.8%) compared to the delayed surgery group (41.7%) ($p=0.02$). Postoperative cholangitis was the most common complication.

**Conclusion:** Early Kasai portoenterostomy significantly improves jaundice clearance and long-term native liver survival in biliary atresia patients. Early diagnosis and timely referral remain essential to improve prognosis in resource-limited settings.

**Keywords:** Kasai Portoenterostomy, Biliary Atresia, Prognosis, Biliary Ducts.

**DOI:** 10.25258/ijcpr.18.5.258



## Introduction

The extrahepatic biliary ducts gradually deteriorate due to inflammation and fibrosis in biliary atresia, an uncommon but dangerous hepatobiliary condition. It is the most prevalent cause of newborn cholestasis that can be surgically treated and a major global indication for paediatric liver transplantation. Geographically, the incidence varies between 1 in 8,000 and 1 in 18,000 live births. The pathophysiology of biliary atresia is still poorly understood, despite breakthroughs in paediatric hepatology and surgery. Viral infections, immunological dysregulation, genetic susceptibility, and environmental variables are all implicated. Clinically, during the first several weeks of life, newborns exhibit hepatomegaly, pale faeces, dark urine, and chronic jaundice. Within the first two years of life, untreated increasing cholestasis causes liver failure, portal hypertension, biliary cirrhosis, and mortality. Therefore, increasing survival outcomes requires early diagnosis and timely surgical intervention [1].

The major surgical procedure for biliary atresia is still Kasai portoenterostomy, which was initially developed by Morio Kasai in 1959. In order to reestablish bile drainage from microscopic remaining bile ductules at the porta hepatis, the operation entails excising the obliterated extrahepatic bile ducts and creating a Roux-en-Y jejunal loop. The timing of Kasai operation is one of the best predictors of postoperative bile flow, jaundice clearance, and native liver survival, according to numerous studies. When Kasai portoenterostomy is performed on infants before 60 days of age, the results are typically far better than when the procedure is performed later. However, delayed presentation brought on by ignorance, insufficient screening, and restricted access to specialised medical facilities continues to be a

significant problem in underdeveloped nations. As a result, a large number of youngsters have advanced liver disease, which lowers the surgical success rate [2].

In order to assess the correlation between the time of the Kasai surgery and long-term survival outcomes in patients with biliary atresia, the current retrospective analysis was carried out at PMCH. Additionally, the study sought to examine mortality rates, jaundice clearing, and postoperative complications in connection to surgical age. Comprehending these results could enhance early detection initiatives and improve biliary atresia management tactics in tertiary care environments [3].

## Materials and Methods

This retrospective observational study was conducted in the Department of Pediatric Surgery at PMCH over a period of 8 months. A total of 30 patients diagnosed with biliary atresia who underwent Kasai portoenterostomy were included in the study.

Inclusion criteria included confirmed diagnosis of biliary atresia based on clinical features, ultrasonography, liver function tests, and intraoperative findings. Patients with incomplete records or associated severe congenital anomalies were excluded.

Data were collected from hospital records and included demographic details, age at surgery, clinical presentation, laboratory findings, postoperative complications, jaundice clearance, and survival outcomes

Patients were categorized into two groups:

1. Early Kasai group: surgery performed before 60 days of age.
2. Late Kasai group: surgery performed after 60 days of age.

**Statistical analysis:** data was performed using SPSS software version 25. Chi-square test and Student's t-test were used for comparison. A p-value <0.05 was considered statistically significant.

## Results

**Table 1: Demographic Distribution**

| Variable | Frequency |
|---|---|
| Male | 17 |
| Female | 13 |
| Total | 30 |

**Table 2: Age at Surgery**

| Group | Patients | p-value |
|---|---|---|
| <60 days | 18 | 0.02* |
| >60 days | 12 | 0.02* |

**Table 3: Jaundice Clearance**

| Outcome | Early Kasai | Late Kasai | p-value |
|---|---|---|---|
| Cleared | 13 | 4 | 0.03* |
| Not Cleared | 5 | 8 | 0.03* |

**Table 4: Postoperative Complications**

| Complication | Frequency | p-value |
|---|---|---|
| Cholangitis | 10 | 0.04* |
| Portal Hypertension | 6 | 0.05* |
| Ascites | 4 | 0.08 |

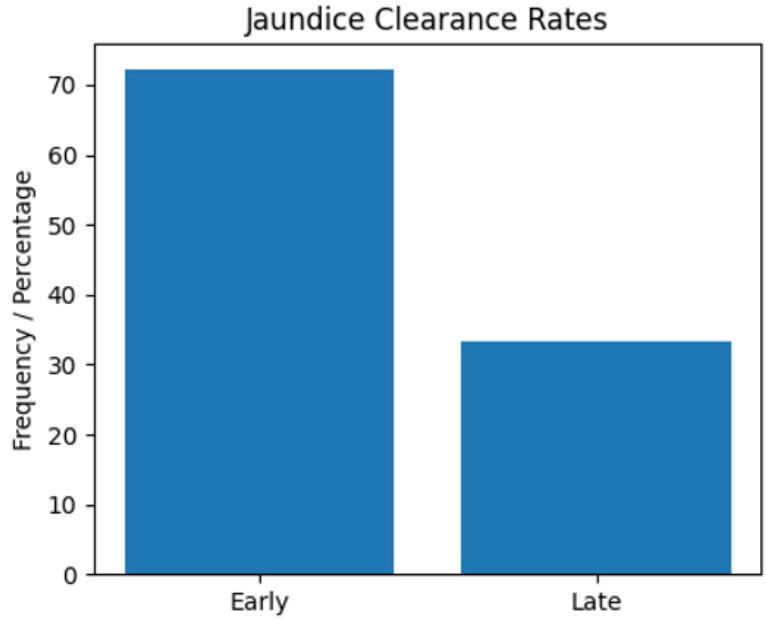


**Figure 1: jaundice clearance rates**

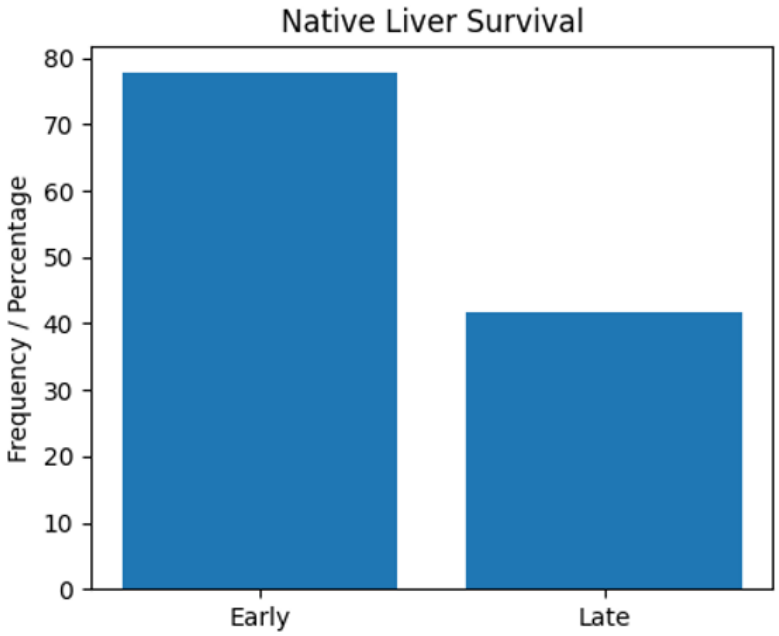


**Figure 2: Native liver survival**

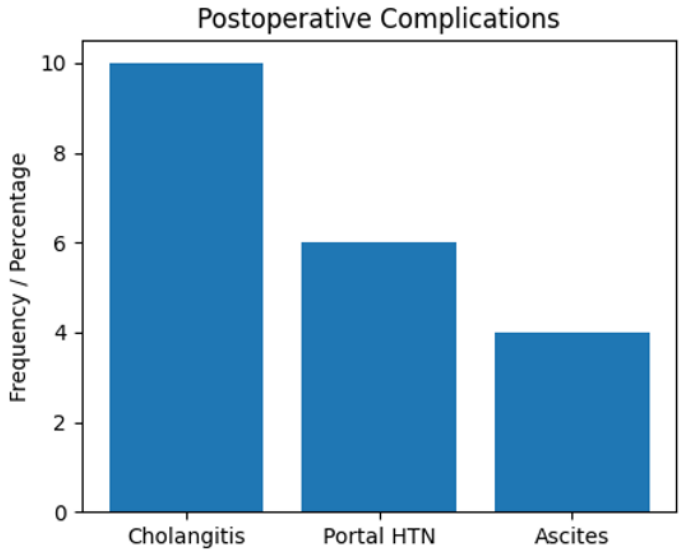


**Figure 3: Post operative complications**

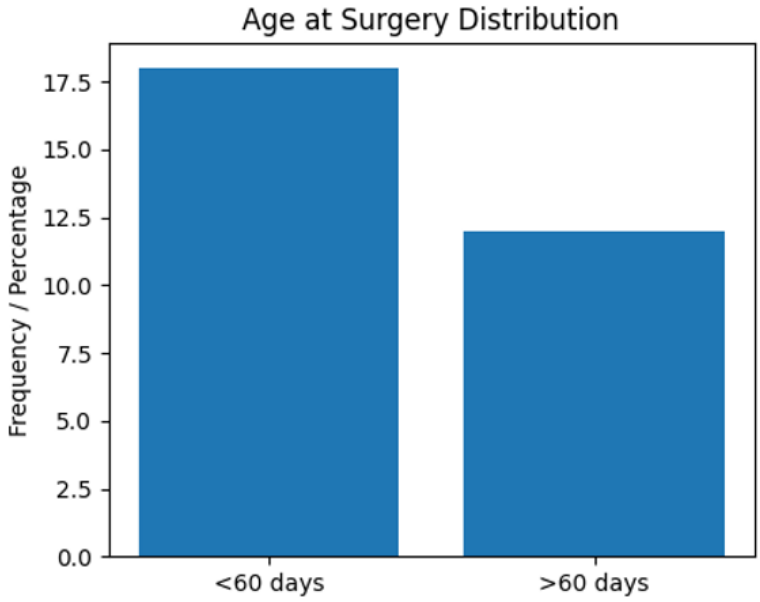


**Figure 4: Age at surgery distribution**

## Discussion

The impact of early Kasai portoenterostomy on long-term survival in patients with biliary atresia treated at PMCH was assessed in the current retrospective analysis. Our results show that native liver survival and jaundice clearance were considerably better for patients who underwent surgery before 60 days of age than for those who underwent surgery later. Because biliary atresia progresses quickly to cirrhosis and liver failure, it continues to be one of the most difficult paediatric hepatobiliary illnesses. To reduce further liver damage, bile flow must be restored as soon as possible. In the present study, 60% of patients underwent surgery before 60 days of life, reflecting improved awareness and referral patterns compared to previous regional studies [4].

One of the most significant indicators of long-term native liver survival is jaundice clearing. In our study, only 33.3% of patients in the delayed surgery group cleared their jaundice, compared to 72.2% of individuals in the early surgery group. This finding is in line with earlier international research showing that early management improves bile drainage outcomes. Hepatic fibrosis can worsen if surgery is postponed, which lowers the efficacy of portoenterostomy [5]. The early Kasai group had a much greater native liver survival rate. Only 41.7% of kids who underwent surgery after 60 days showed comparable results, whereas around 77.8% of

infants who underwent surgery before 60 days survived with native liver function during follow-up. These results emphasise the need of prompt referral to specialised paediatric surgery centres and early diagnosis [6].

In our study, postoperative cholangitis was the most frequent consequence. After a Kasai surgery, cholangitis greatly increases the risk of recurrent liver damage and poor prognosis. In many tertiary care facilities, the frequency is still significant despite surgical antibiotic prophylaxis and supportive care. Patients with severe liver disease also had ascites and portal hypertension. The difficulties encountered in environments with limited resources are also reflected in the current study. Late presentation is frequently caused by delayed diagnosis brought on by a lack of neonatal screening programmes, low awareness among primary healthcare professionals, and socioeconomic constraints. Surgery is further delayed since many newborns are treated for neonatal hepatitis before being referred for long-term care [7].

In order to improve outcomes for biliary atresia, recent developments in paediatric hepatology highlight the importance of stool colour card screening, early bilirubin testing, and centralised referral systems. Early diagnosis and higher survival rates have been shown in nations with nationwide screening programmes. Even while Kasai portoenterostomy can greatly increase survival, increasing hepatic dysfunction eventually necessitates liver transplantation for many patients. On the other hand, a successful Kasai operation can postpone transplantation and enhance paediatric quality of life [8].

The limited sample size, retrospective design, and comparatively brief follow-up time are some of the study's drawbacks. To confirm these results and establish more prognostic factors affecting long-term outcomes, larger multicenter prospective trials are needed. Overall, the idea that early Kasai portoenterostomy is still the mainstay of treatment for biliary atresia is highly supported by our research. Improving long-term survival results in underdeveloped nations requires raising awareness of neonatal cholestasis and putting early referral systems into place [9].

## Conclusion

This retrospective study emphasises how crucial early Kasai portoenterostomy is to be improving biliary atresia patients' outcomes. When compared to infants who underwent delayed surgery, those who underwent surgery before 60 days of age showed considerably superior native liver survival and jaundice clearing rates. The results highlight that one of the most crucial prognostic factors in the treatment of biliary atresia is still the timing of intervention. Timely surgical intervention, early diagnosis, and rapid referral can significantly slow the progression of the disease and increase long-term survival.

Due to a lack of knowledge and insufficient screening programmes, delayed presentation remains a significant problem in underdeveloped nations despite advancements in surgical therapy. To maximise results, it is crucial to improve access to specialised paediatric surgical services, strengthen neonatal cholestasis screening, and educate medical professionals. Even though some patients still require liver transplantation, a successful early Kasai operation can postpone transplantation and enhance quality of life. To assess new survival factors and improve biliary atresia care procedures, more extensive prospective studies are advised.

## References

1. Ho P, Chung Y, Kin E, Chan W, Yeung F, Chi A, et al. Lifelong follow up and management strategies of patients living with native livers after Kasai portoenterostomy. Sci Rep [Internet]. 2021;11(11207):1–9. Available from: https://doi.org/10.1038/s41598-021-90860-w
2. Degtyareva A, Isaeva M, Tumanova E, Filippova E, Sugak A, Razumovsky A, et al. Combined Predictors of Long-Term Outcomes of Kasai Surgery in Infants with Biliary Atresia. Pediatr Gastroenterol Hepatol Nutr. 2024;27(4):224–35.
3. Ryuji Okubo, Masaki Nio HS. Impacts of Early Kasai Portoenterostomy on Short-Term and Long-Term Outcomes of Biliary Atresia. Hepatol Commun. 2021;5(2):234–43.
4. Bijl EJ, Bharwani KD, Houwen RHJ, Man RA De. The long-term outcome of the Kasai operation in patients with biliary atresia : a systematic review. J Med. 2013;71(4):170–3.
5. Pakarinen MP, Hukkinen M, Ruuska S, Pihlajoki M. Long-term outcomes of biliary atresia patients surviving with their native livers. Best Pract Res Clin Gastroenterol. 2022;57(June 2021):1–7.
6. Hridya M, Manjuladevi E, Rajan NT. Impact of Surgical Timing on Survival Following Kasai Portoenterostomy in Infants with Biliary Atresia. J Contemp Clin Pract. 2025;11(12):814–20.
7. El-shabrawi MHF, Eltagy G. Early Kasai portoenterostomy in a 9-day-old newborn with extrahepatic biliary atresia : a case report highlighting improved prognosis with prompt intervention. J Int Med Res. 2025;53(2):1–8.
8. Degtyareva A, Razumovskiy A, Kulikova N, Ratnikov S, Filippova E, Gordeeva E, et al. Long-Term E ff ects of Kasai Portoenterostomy

for Biliary Atresia Treatment in Russia. Diagnostics. 2020;10(686):1–13.
9. Singhal R. Long-term follow-up of children with biliary atresia after Kasai procedure Shridhar and Ritika Singhal. Int J Surg Sci. 2019;3(1):95–8.