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RESEARCH ARTICLE

HYDATID CYST IN CAUDATE LOBE OF LIVER- A THERAPEUTIC CHALLENGE

Dr. Akash Hegade, Dr. Koushik M., Dr. Daniel Raja, Dr. Asmita Narsinge and Dr. Devbrata Adhikari

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Hydatid Liver Cyst, Laparoscopic Excision, Caudate Lobe

Abstract

Background: Treatment of Echinococcal disease depends on the type, size, and location of the cyst, presence of complications, and the experience of the team. Treatment options include percutaneous treatments, surgery, anti-parasitic drugs, and follow-up without intervention.

Objectives: To report a case of hydatid cyst located in caudate lobe of liver.

Materials and Methods: A 32-year-female, presented with c/o of Pain in abdomen since 1 week localized to right hypochondrium. USG (A+P) was suggestive of hydatid cyst in caudate lobe of liver. MRI was suggestive of hydatid cyst of liver with abutment of left portal vein and IVC. Patient was first started on medical treatment for 6 weeks and then planned for laparoscopic hydatid cyst excision. Cyst was approached laproscopically and fluid aspirated followed by injection of 10% betadine solution (scolicidal) and then reaspirated. Endocyst was removed. The resultant cavity was plugged with omentum.

Results: Patient was discharged on POD-3 on T. Albendazole 400 mg BD for 3 months and T. Praziquantal 600 mg once a week for 3 months. After 6 months, patient is symptomatically well and has no complaints or signs of recurrence at present.

Conclusion: Minimally invasive laproscopic sugery has more or less replaced the conventional open surgical approach for cystic hydatidosis. Our case is unique due to its location in the caudate lobe of liver alongwith abutment and mild compression of IVC and portal vein which poses a therapeutic challenge to the surgeon. The caudate lobe of the liver is an anatomically complex liver segment. Its unique and intimate location with the hepatic hilum and inferior vena cava (IVC) coupled with its dual supply from both portal pedicles and direct venous drainage into the IVC make vascular control a particular challenge. Technically challenging cyst excision can be performed laparoscopically with its benefits of improved perioperative outcomes.

Introduction:-

Hydatid disease in people is mainly caused by infection with the larval stage of the dog tapeworm Echinococcus granulosus. It is an important pathogenic, zoonotic and parasitic infection (acquired from animals) of humans, following ingestion of tapeworm eggs excreted in the faeces of infected dogs. Hydatid disease is a major endemic health problem in certain areas of the world. Cystic hydatid disease usually affects the liver (50–70%) and less

Corresponding Author:-Dr. Akash Hegade

frequently the lung, the spleen, the kidney, the bones, and the brain [1]. They may not be diagnosed early because they remain asymptomatic at small sizes and may reach large sizes at the time of diagnosis. In this situation, compression symptoms may occur and they may present with serious complications such as rupture and anaphylactic shock, which are rare.

Early diagnosis is important, as if the diagnosis is late, cysts are complicated and the treatment is difficult and long-lasting . The most effective treatment of noncomplicated hydatid disease is evacuation of the cyst fluid and decreasing the dead space of the cystic cavity. However, if the cysts are complicated, there is no standard management of treatment . In this later scenario, treatment is determined according to the stage of the cyst and the relation of the cyst to the biliary ducts or surrounding organs.[2]

Infection of the cyst can facilitate the development of liver abscesses and mechanical local complications, such as mass effect on bile ducts and vessels that can induce cholestasis, portal hypertension, and Budd-Chiari syndrome The diagnosis of hydatid cyst can be made with radiologic imaging, serological, immunological and laboratory studies. Ultrasonography (USG), Computed Tomography (CT), and Magnetic Resonance Imaging (MRI) are highly effective in detecting hepatic hydatid cysts [1].

The treatment of the echinococcal disease depends on the type, size, and location of the cyst, the presence of complications, and the experience of the team. Treatment options include percutaneous treatments, surgical procedures, anti-parasitic drugs, and follow-up without intervention .Surgery is still the treatment of choice and can be performed by the conventional or laparoscopic approach. However, laparoscopic approach leads to an important rate of recurrence of the disease.[4]

Case Report:
32-year-female resident of Kalyan, presented with a complaint of Pain in abdomen since 1 week localized to right hypochondrium , dull aching associated with fever and loss of appetite.on examination, per abdomen was soft, non tender. Rest systemic examination was WNL. Total leucocyte count was 17600/cmm with 6% eosinophils. USG (A+P) was suggestive of well defined, unilocular, anechoeic, exophytic cystic lesion approx 4.2×6.4×5 cm Volume -80 cc in Caudate lobe of liver, sowing " double line sign", with abutment and narrowing of portal vein, suggestive of hydratid cyst.

Futher MRI was done which showed, peripherally enhancing thin walled cystic lesion in caudate lobe of liver, with mildly enhancing membrane/ septa within the lesion with abutment of left portal vwin inferiorly and laterally, however portal venous flow appeared normal. Lesion was posteriorly abuting IVC; lesion was most likely suggestive of hydatid cyst of liver.

Post op patient was vitally stable and there were no post operative complaints except for wound pain, which was managed conservatively. Patient was discharged satisfactorily on POD-3 on Tab Albendazole 400 mg BD for 3 months and Tab Praziquantal 600 mg once a week for 3 months.

Hitopathological report was corroboratory with our findings.

Patient was kept on close follow up for 6 months. Patient is symptomatically well and has no complaints ir signs of recurrence at present.

Patient was first started on t. Albendazole 400mg bd and t. Praziquintal 600mg once a week for 6 weeks.

Patient was simultaneously worked up for general anaestheisa and then after 6 weeks planned for for laparoscopic hydratid cyst excision. Cyst was encountered with laparascopic approach and fluid aspirated followed by injection of 10% betadine solution as scolicidal agent for 10 minutes and then reaspirated. Endocyst was removed. The resultant cavity (deadspace) was plugged with omentum.

Procedure was uneventful and patient tolerated the procedure well.

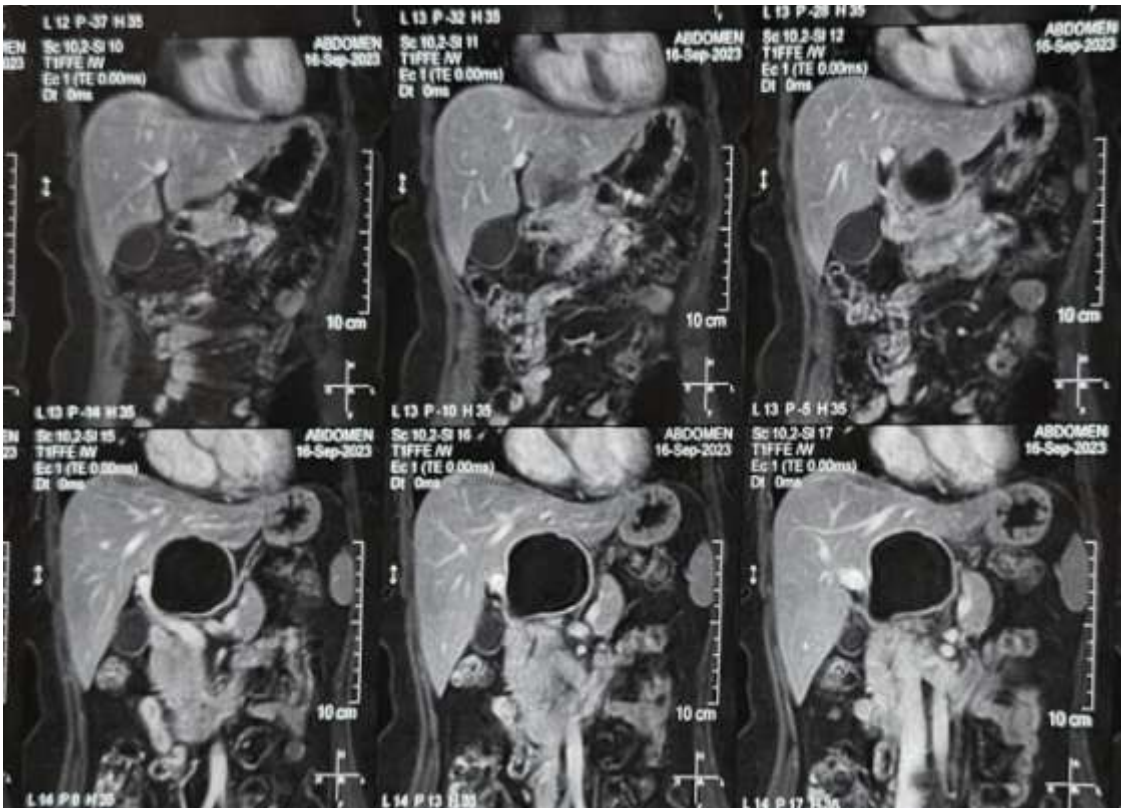


Figure 1:-MRI Image showing cystic lesion in caudate lobe of liver, with mildly enhancing membrane/ septa within the lesion with abutment of left portal vein inferiorly and laterally, however portal venous flow appeared normal. Lesion was posteriorly abuting IVC.

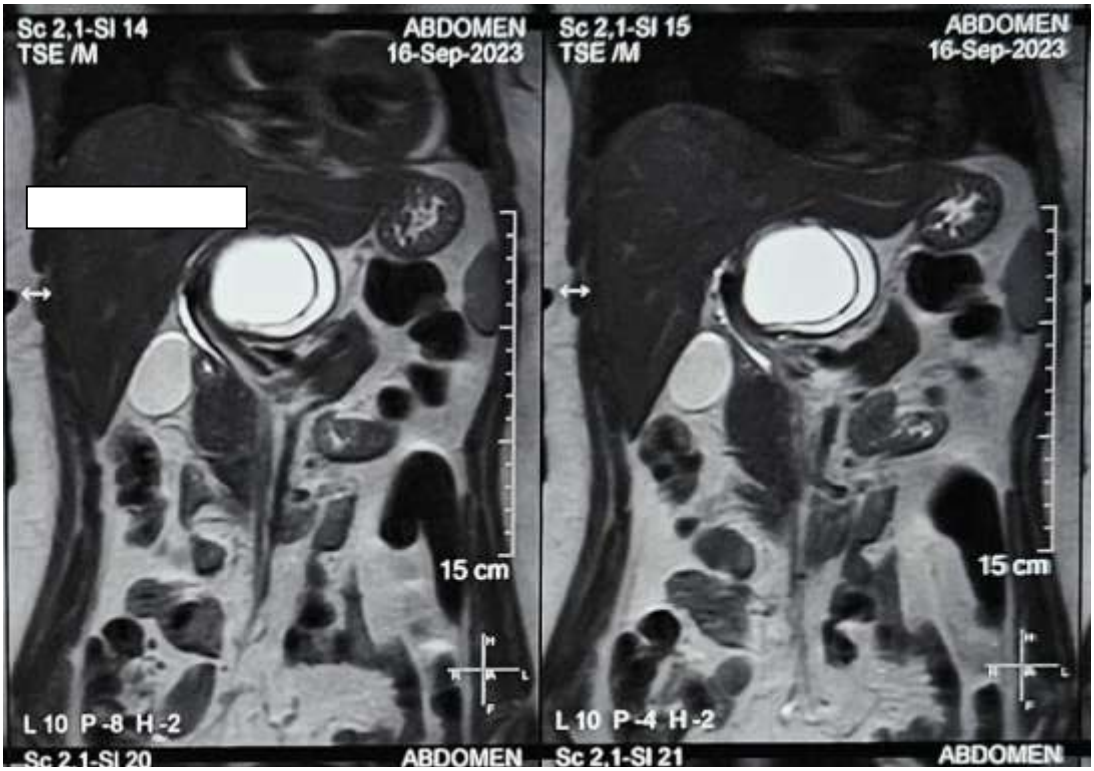


Figure 2:- MRI Showing peripheral thin wall enhancement.

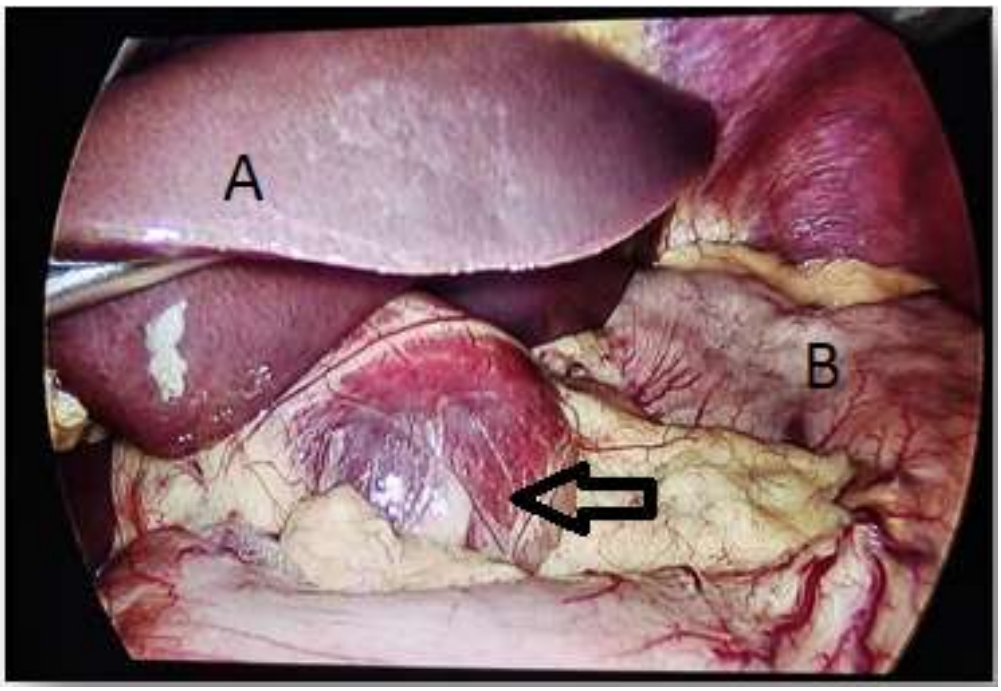


Figure 3:- Laparoscopic image after retracting liver up showing structures labelled as A. liver B. Stomach Arrow showing Hydatid cyst in caudate lobe of liver.

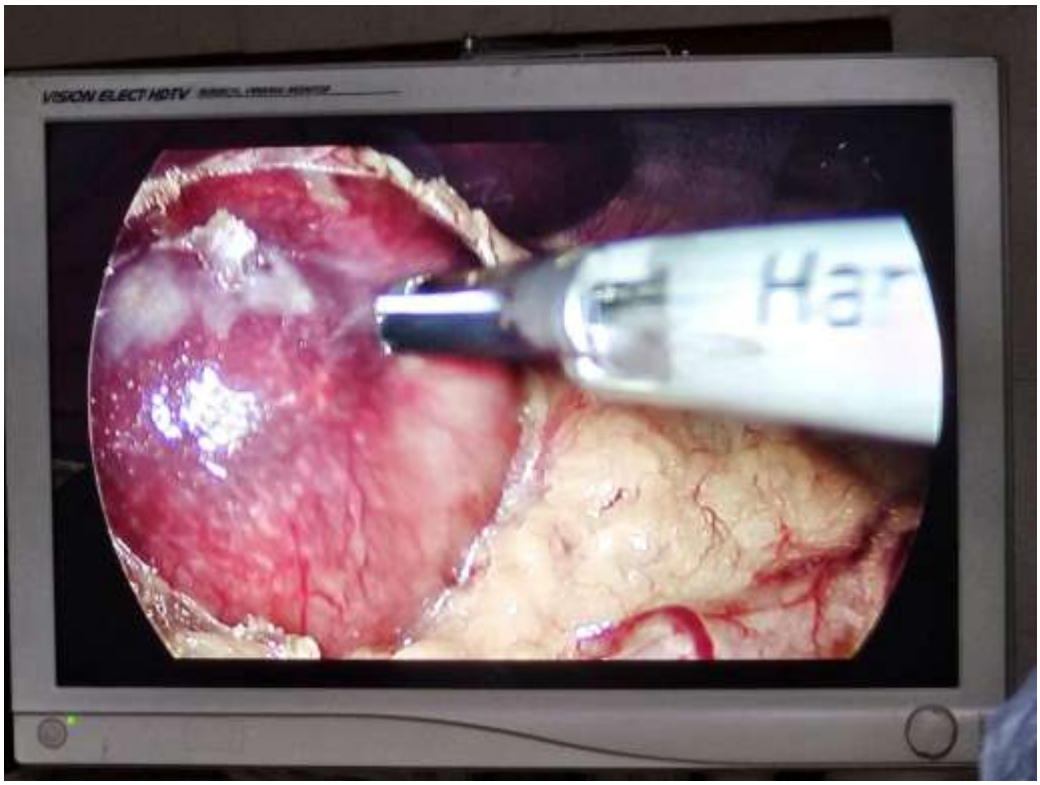


Figure 4:- Shows opening of Cyst wall after aspiration, irrigation, reaspiration.

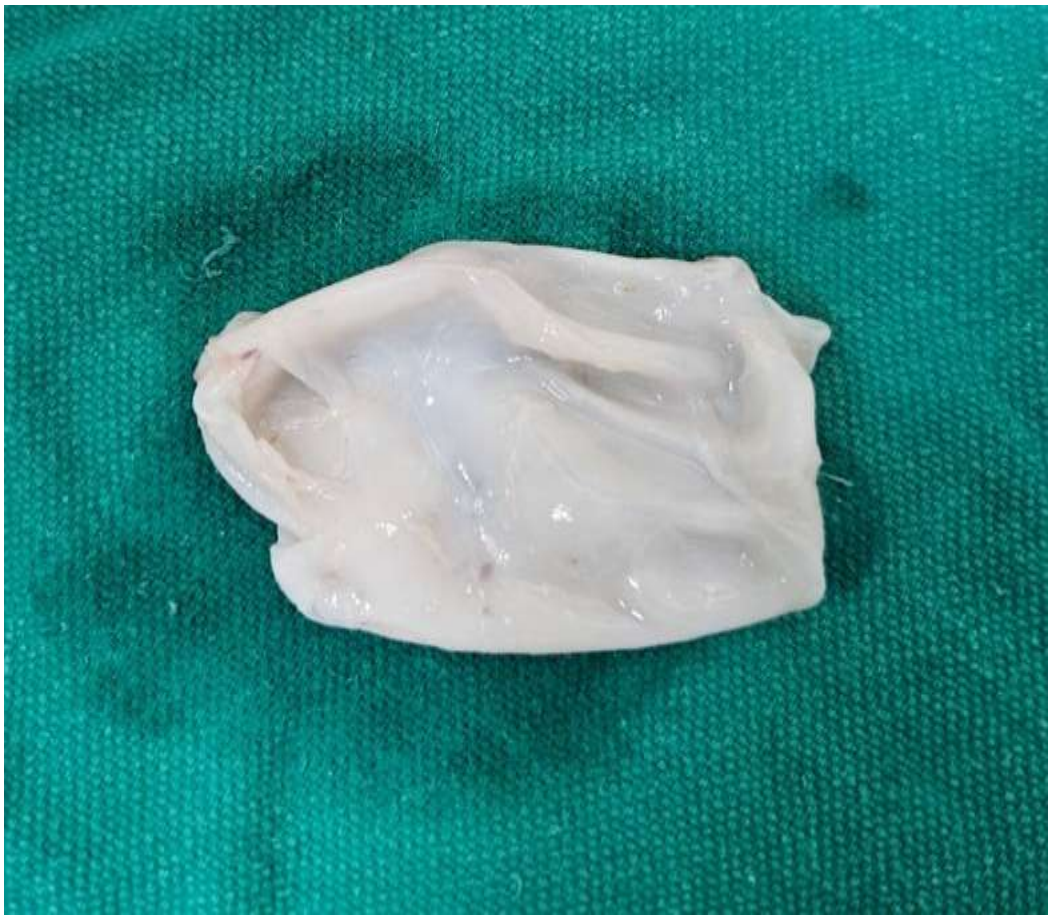


Figure 5:- Specimen of Endocyst of hydatid after removal.

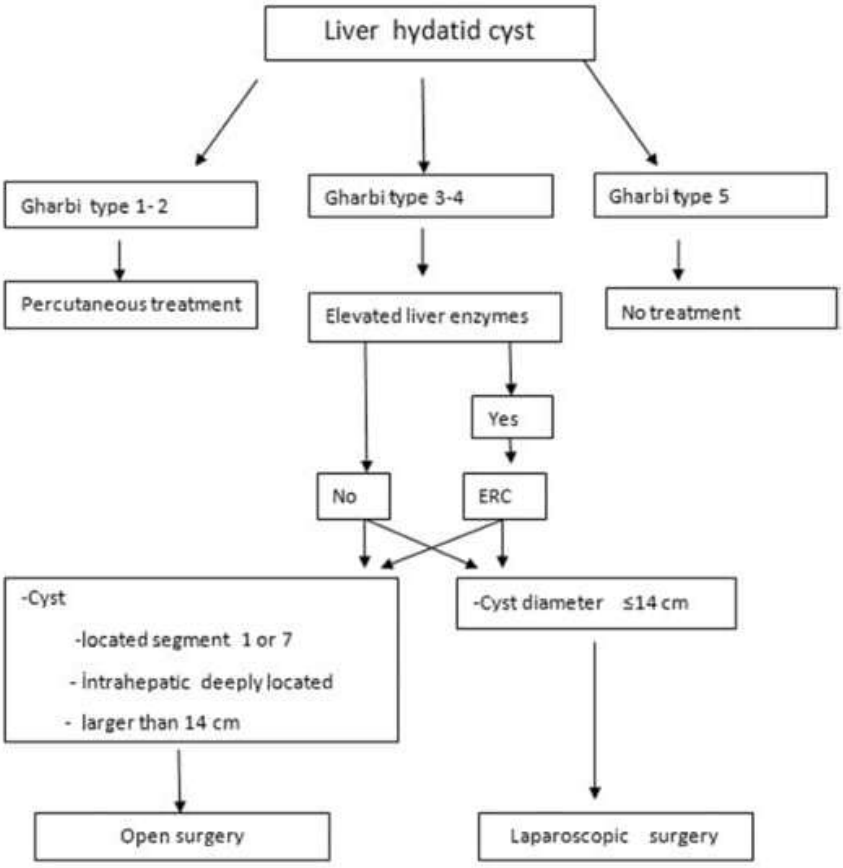
Discussion:-

Surgery remains the mainstay of treatment in managing hydatid cysts of liver. Medical management can only be used in few groups and instances to avoid complications of surgery.

Gharbi classification (USG based) is used to decide treatment modalities for hyadatid cyst.

Types of cyst	Description
Type I	Pure (clear) fluid collection (the cyst is similar to the simple liver cyst)
Type II	Fluid collection with a split wall (water lily sign)
Type III	Fluid collection with multiple septa/and/or daugh ter cyst (honey comb sign)
Type IV	Heterogeneous cyst contents with high internal echoes
Type V	Cyst with reflecting calcified thick wall

the following image depicts treatment algorithm for management of hydatid cysts as proposed by Byrak M. et al (2019)[3] In our case, instead of open approach, we have chosen laproscopic managent to avoid complications specific to caudate lobe of liver like blind dissection, damage to IVC, portal vein, etc.



Conclusion:-

E. granulosus can cause cystic lesions anywhere in the body. Thus, cystic echinococcosis has to be thought of as a differential diagnosis in patients presenting with cystic swellings anywhere in the body in endemic areas unless otherwise proved. Appropriate investigations have to be performed in order to arrive at an accurate diagnosis and in order to prescribe a specific treatment, which isessentially surgical. Considering the advantages of minimally invasive laproscopic sugery, it has more or less replaced the conventional open surgical approach for management of liver hydatidosis, in a large number of cases. Our case is unique due to its location in the caudate lobe of liver alongwith abutment and mild compression of IVC and portal vein whiich poses a therapeutic challenge to the surgeon.

The caudate lobe of the liver is an anatomically complex liver segment that poses significant technical and oncologic challenges to surgeons. Its unique and intimate location with the hepatic hilum and inferior vena cava (IVC) coupled its dual supply from both portal pedicles and direct venous drainage into the IVC make vascular control a particular challenge. With the progress of laparoscopic cyst excison, technically challenging cyst excision performed laparoscopically has its attendant benefits of improved perioperative outcomes (5)

Minimally invasive approaches for hydatid liver cysts offer advantages such as shorter hospitalization and potentially quicker recovery, making them valuable treatment options when accompanied by careful patient selection and adherence to proper surgical techniques.[6].

Laparoscopic resection of caudate lobe is an uncommon procedure because of the complexity of the surgical dissection of the area and early involvement of IVC and hilar structures by invasive lesions of the caudate lobe (5).

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