Case Report

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A Case of Pyogenic Liver Abscess in a 16 year Old Previously Healthy Boy

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Abstract

An 16 year-old, previously healthy boy reported in the ER with chief complaints of abdominal pain, high-grade fevers, nausea and emesis. Multiple hepatic abscesses were found with the help of ultrasound. Aspiration cultures grew Fusobacterium Necrophorum, a rare bacterium causing potentially fatal liver abscesses in humans. Broad spectrum antibiotics were immediately started but his symptoms worsened. Latter on percutaneous drainage of multiple abscesses was performed and purulent fluid >150 ml was drained after which patient showed significant improvement. After percutaneous drainages and narrowing of antibiotics, the patient showed no signs of infection and was discharged on a 6-week antibiotic course. Because oropharyngeal infections are a potential source of bacteraemia, they must be considered in the differential diagnosis of patients presenting with hepatic abscesses and no evidence of immunocompromise.

Keywords: Liver abscess; Fusobacterium necrophorum; Percutaneous Drainage.

INTRODUCTION

A pyogenic liver abscess (PLA) is a pocket of pus that forms in the liver due to a bacterial infection. An abscess is usually accompanied by swelling and inflammation in the surrounding area. It can cause pain and swelling in the abdomen.

A pyogenic liver abscess can be a life threatening condition if it is not treated properly. The most common cause of pyogenic liver abscess is biliary disease. This is a broad term for conditions in the biliary tree affecting the liver, pancreas, and gallbladder.

Other causes and risk factors include:

- bacteria from a ruptured appendix that forms an abscess
- pancreatic cancer
- colon cancer
- inflammatory bowel disease, such as diverticulitis or a perforated bowel
- a blood infection, or septicemia
- trauma to the liver by accident or injury

Pyogenic liver abscesses are not frequently found in adolescent population. The following is a rare case of multiple liver abscesses that grew Fusobacteriumnecrophorum, an anaerobic gram negative rod that is commonly found in human oropharyngeal flora.

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CASE

A 16 year old boy presented to our ER with the chief complaint of abdominal pain for 4 days which was accompanied with high grade fever nausea and vomiting. He denied any intake of any drug, alcohol or smoke. Ongeneral examination patient was tachycardic (108 beats/min), normotensive (110/70 mmHg), and febrile (102 °F). Apart from upper right quadrant tenderness, there was no other positive finding on physical examination. There was also no history of respiratory tract illness or dental disease. Laboratory investigations showed leucocytosis of 25,000/µL, erythrocyte sedimentation rate (ESR) 61, International Normalized Ratio (INR) 1.39, aspartate transaminase 31, alanine transaminase 47, alkaline phosphatase 144 and direct bilirubin 0.5.

The broad spectrum antibiotics were and percutaneous drainage was performed onthe largest hepatic abscess which measured 5.5 cm. During culture Fusobacteriumnecrophorumgrew on aspirated material. Despite broad spectrum therapy the patient did not show any improvement. The patient developed worsening tachypnea, fevers, abdominal pain and leukocytosis. The repeated ultrasound showed increase in the size of hepatic abscess. On day 7 and day 9 of the hospital admission, two additional drainage procedures were performed which ultimately drained most of the collections. The purulent fluid of > 150 ml was drained and no organisms grew from the cultures of the subsequent hepatic aspirations and patient showed improvement clinically. Both pain and fever subsided over a period of time. The repeated ultrasound was done on day 12 after admission which showed resolution of most of most hepatic abscesses with no focal lesion. After 20 days of the admission patient was discharged after the with a six week antibiotic course therapy.

DISCUSSION

The pyogenic abscess in the young age group is uncommon and particularly in those who are not immunocompromised. Patients with diabetes mellitus, sickle cell anaemia, liver transplant, and malignant cancer are at an even greater risk for developing liver abscess. Several recent studies from Taiwan mention an association between Klebsiella pneumoniae and colorectal cancer. Their studies show patients diagnosed with PLA had a fourfold increase in gastrointestinal malignancy, of which colorectal cancer was the most common. The pyogenic liver abscess are usually manifested in the form of fever, right upper quadrant pain and chills. Laboratory findings typically shows microcytic anaemia, leukocytosis and raised ESR. Liver function tests are usually normal. The most sensitive test usually is ultrasound. The most pyogenic liver abscesses can be successfully managed with broad spectrum intravenous antibiotics and percutaneous drainage.

A less common microorganism found in pyogenic liver abscesses is F. necrophorum, which is a gram-negative obligate anaerobe that is found in the oropharynx, gastrointestinal tract and genitourinary tract. Fusobacterium Necrophorum is most commonly associated with Lemierre's syndrome, a potentially life threatening illness that begins as an oropharyngeal infection that leads to internal or external jugular venous thrombophlebitis and progresses to sepsis with embolic metastasis to the lungs and other organs.

The fusobacteria species are sensitive to commonly used antibiotics, but recent reports suggest that there is increasing trend of resistance to vancomycin, neomycin, erythromycin, amoxicillin, ampicillin, and phenoxymethylpenicillin. In the recent past some resistant patterns to quinolones had been identified with fusobacteria isolated from oral flora of dogs and cats.

Currently, there is no standard duration of antibiotic therapy for the treatment of F. necrophorum liver abscesses. The current literature states that patients may require 4 to 6 weeks of antibiotic therapy. Fusobacterium is highly sensitive to antibiotics; however, the inflammatory response the body mounts can cause significant illness thus requiring long-term treatment.

The extent of percutaneous drainages required for pyogenic liver abscesses has not been clearly mentioned in the literature. Case *et al* described in their study how an adolescent boy with an F. necrophorum liver abscess underwent two CT-guided percutaneous drainages with antibiotic treatment and was successfully treated. The results in our patient were quite similar, where we performed percutaneous drainages as well as used broad spectrum antibiotics.

CONCLUSION

Fusobacterium infection is one of the rarest causes leading to hepatic abscess. Given the increased incidence of oropharyngeal infections in children and adolescents, one must consider this and other

oropharyngeal sources in the differential for hepatic abscesses with no evidence of immunocompromise or prior intra-abdominal procedures. Furthermore percutaneous drainage of hepatic abscesses should be considered the first line treatment in such cases along with broad spectrum antibiotics.

REFERENCES

1. Ahmed Z, Bansal SK, Dhillon S. Pyogenic liver abscess caused by Fusobacterium in a 21-year-old immunocompetent male. World journal of gastroenterology: WJG. 2015 Mar 3;21(12):3731.
2. Mentel DA, Cameron DB, Gregg SC, Cholewczynski W, Savetamal A, Crombie RE, Possenti PP, Atweh NA. A case of pyogenic liver abscesses in a previously healthy adolescent man. Journal of Surgical Case Reports. 2014 Nov 1;2014(11):rju118.
3. Case AE, Stober KC, Steele RW. An adolescent with abdominal pain and Fever. ClinPediatr 2013;52:370–3.
4. Mishra K, Basu S, Roychoudhury S, Kumar P. Liver abscess in children: an overview. World J Pediatr 2010;6:210–6.
5. Lei WY, Chang WH, Shih SC, Liu CJ, Shih CH. Pyogenic liver abscess with Prevotella species and Fusobacteriumnecrophorum as causative pathogens in an immunocompetent patient. Journal of the Formosan Medical Association. 2009 Mar 1;108(3):253-7.
6. Bytyci F, Khromenko E. Hepatic abscess caused by Fusobacteriumnecrophorum after a trip to the dentist. Case Reports. 2016 Mar 1;2016:bcr 2015210235.
7. Jayasimhan D, Wu L, Huggan P. Fusobacterial liver abscess: a case report and review of the literature. BMC Infectious Diseases. 2017 Dec;17:1-9. Carretero RG, Lopez-Lomba M, Vazquez-Gomez O, Rodriguez-Maya B. Bacteraemia and liver abscess due to Fusobacteriumnecrophorum. Case Reports. 2017 Jul 27;2017:bcr-2017.