

LAPAROSKOPSKI PRISTUP LEČENJU INFLAMATORNOG MIOFIBROBLASTNOG TUMORA SLEZINE, PRIKAZ SLUČAJA I PREGLED LITERATURE

PRIKAZ SLUČAJA

CASE REPORT

LAPAROSCOPIC APPROACH TO THE TREATMENT OF INFLAMMATORY MYOFIBROBLASTIC TUMOR OF THE SPLEEN, CASE REPORT AND LITERATURE REVIEW

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SAŽETAK

Uvod: Benigni tumori slezine su retko oboljenje. Njihova patogeneza i klinička prezentacija predstavljaju dijagnostički i hirurški izazov, u smislu postavljanja prave dijagnoze i odabira adekvatnog hirurškog pristupa.

Prikaz slučaja: U našem radu predstavljamo pacijentkinju staru 45 godina koja je započela ispitivanje zbog nespecifičnih tegoba u vidu povremenih bolova u levom gornjem kvadrantu abdomena. Vrednosti laboratorijskih parametara su bile u granicama normale, a preoperativna radiološka dijagnostika ukazivala je na postojanje promene u slezini koja je odgovarala tumoru. Shodno nalazu preoperativne dijagnostike, odlučili smo se za laparoskopsku splenektomiju. Postoperativni tok je protekao bez neželjenih događaja, a na otpustu pacijentkinji je propisana neophodna vakcinacija i antibiotska profilaksa.

Zaključak: Miofibroblastni tumor slezine predstavlja nepoznanicu u smislu nastanka, sa veoma oskudnom i nespecifičnom prezentacijom simptoma, te se uvek mora ozbiljno pristupiti svakom pojedinačnom slučaju. Laparoskopija zauzima značajno mesto u lečenju ovog oboljenja, s obzirom na sve prednosti minimalno invazivnog pristupa u odnosu na otvorenu hirurgiju.

Ključne reči: slezina, splenektomija, laparoskopija, benigni tumor

ABSTRACT

Introduction: Benign tumors of the spleen are a rare condition. Their pathogenesis and clinical presentation represent a diagnostic and surgical challenge in the sense of establishing the correct diagnosis and selecting the appropriate surgical approach.

Case report: In our paper we are presenting a 45-year-old female patient who was initially tested and examined because of nonspecific complaints manifesting as occasional pain in the left upper quadrant of the abdomen. The values of the laboratory findings were within the reference range and preoperative radiological diagnostics indicated the existence of a mass in the spleen which had the features of a tumor. Based on the preoperative diagnostic finding we decided to perform laparoscopic splenectomy. Postoperative recovery was without adverse events, and the patient was prescribed the necessary vaccination and antibiotic prophylaxis.

Conclusion: Myofibroblastic tumor of the spleen represents, as far as its origin is concerned, a mystery, with its very limited and nonspecific presentation of symptoms, which is why each individual case must be approached seriously. Laparoscopy has a very important role in the treatment of this disease, bearing in mind all the advantages of a minimally invasive approach over open surgery.

Key words: spleen, splenectomy, laparoscopy, benign tumor

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UVOD

Inflamatorni miofibroblastni tumor slezine predstavlja retko benigno oboljenje nepoznate patogeneze. Najčešće se dijagnostikuje kao uzgredni nalaz u sklopu dijagnostičkih procedura [1].

Prema podacima iz aktuelne literature, većina pacijenata kod kojih je ovo oboljenje dijagnostikovano pripada srednjoj starosnoj dobi, sa nešto većom učestalošću javljanja kod osoba ženskog pola. Simptomi mogu biti različiti, od abdominalnog bola ili nelagodnosti u truhu do groznice i splenomegalije [2,3].

Radiološka dijagnostika može dati orijentacione podatke u vidu postojanja hipoehogene mase u slezini, sa ili bez kalcifikata. Pouzdanost radiološke dijagnostike nije dovoljna, te se svakako definitivna dijagnoza postavlja histopatološkim pregledom [4,5].

Splenektomija predstavlja jedini kurativni modalitet lečenja. Kao što je već poznato, laparoskopska splenektomija predstavlja zlatni standard u lečenju gotovo svih oboljenja slezine. Zbog brojnih prednosti u odnosu na otvorenu (klasičnu) splenektomiju, pre svega manjeg broja komplikacija, bolje vizuelizacije, manjeg intraoperativnog gubitka krvi, kraće postoperativne hospitalizacije, bržeg oporavka i, na kraju, boljeg kozmetičkog efekta, prednost treba dati laparoskopskoj splenektomiji [6]. Preporučuje se, ipak, kliničko praćenje operisanih pacijenata [7].

U našem radu predstavljamo prikaz operativne tehnike i samu laparoskopsku splenektomiju kao siguran, efikasan i lako primenljiv modalitet lečenja inflamatornog miofibroblastnog tumora slezine.

PRIKAZ SLUČAJA

Predstavljamo pacijenta ženskog pola, starosti 45 godina, sa indeksom telesne mase (BMI) od 24,7 kg/m², bez komorbiditeta. Kod pacijentkinje je započeto dijagnostičko ispitivanje zbog nespecifičnih bolova u gornjem levom kvadrantu abdomena, koji su nastali tri meseca pre hospitalizacije u našoj klinici. Na ultrasonografskom pregledu abdomena (UZ) dijagnostikovana je suspektna tumorska promena u slezini. Po prijemu u našu ustanovu dopunjena je dijagnostika kompjuterizovanom tomografijom (CT) abdomena, na kojoj je verifikovana hipoehogena masa u slezini, kraniokaudalnog prečnika 62 mm i transferzalnog prečnika 58 mm, koja po svojim karakteristikama odgovara tumoru slezine (Slika 1).

Laboratorijski nalazi, kao i vrednosti tumorskih markera (CEA, AFP, CA 19-9) bili su u referentnim vrednostima. Na osnovu sprovedene preoperativne dijagnostike, odlučili smo se da uradimo laparoskopsku splenektomiju.

Po uvođenju u opštu endotrahealnu anesteziju (OETA), pacijentkinja je postavljena u desni lateralni položaj pri čemu smo koristili takozvanu *hanging*

INTRODUCTION

Inflammatory myofibroblastic tumor of the spleen is a rare benign disease of unknown pathogenesis. It is most commonly diagnosed as an incidental finding within diagnostic procedures [1].

According to the data from existing literature, most patients diagnosed with this disease are of middle age, and there is a somewhat higher frequency of incidence in female patients. Symptoms can vary, from abdominal pain or discomfort in the abdomen to fever and splenomegaly [2,3].

Radiological diagnostics can provide approximate data as to the existence of a hypoechogenic mass in the spleen, with or without calcifications. The reliability of radiological diagnostics is not sufficient, which is why a definite diagnosis is established by means of a histopathological examination [4,5].

Splenectomy represents the only curative modality of treatment. As is already known, laparoscopic splenectomy represents the golden standard in treating almost all splenic diseases. Because of numerous advantages over open (classic) splenectomy, primarily a lesser number of complications, better visualization, lesser intraoperative blood loss, shorter postoperative hospitalization, quicker recovery, and, finally, a better cosmetic effect, priority should be given to laparoscopic splenectomy [6]. Clinical follow-up of surgically treated patients should, nevertheless, be carried out [7].

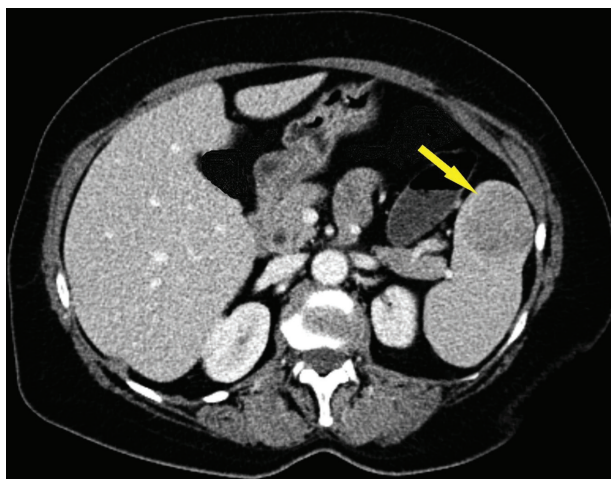
In our paper, we present an operating technique and laparoscopic splenectomy, itself, as a safe, efficient and easily applicable modality of treating inflammatory myofibroblastic tumor of the spleen.

CASE REPORT

We present a female patient, aged 45 years, with a body mass index (BMI) of 24.7 kg/m², without comorbidities. Diagnostic testing of this patient started due to nonspecific pain in the upper left quadrant of the abdomen, which had begun three months prior to hospitalization at our clinic. Ultrasonographic (US) examination of the abdomen showed a suspect tumorous mass in the spleen. Upon admission to our clinic diagnostics was completed with computerized tomography (CT) of the abdomen, which verified the existence of a hypoechogenic mass in the spleen, with a craniocaudal diameter of 62 mm, and a transverse diameter of 58 mm, which had the characteristic of a tumor of the spleen (Figure 1).

Laboratory results, as well as tumor marker values (CEA, AFP, CA 19-9), were within the reference range. Based on the preoperative diagnostics we decided to perform a laparoscopic splenectomy.

After being put under general endotracheal anesthesia (GETA), the patient was placed in the right later-

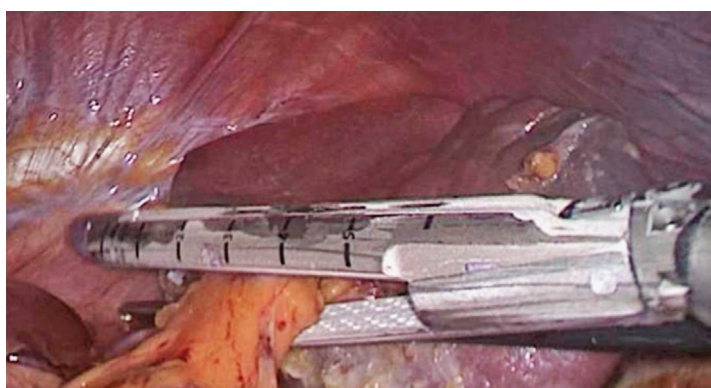


Slika 1. Izgled tumora slezine na preoperativnom CT pregledu

Figure 1. Image of the tumor of the spleen on preoperative CT examination

spleen tehniku. Nakon toga je kreiran arteficialni pneumoperitoneum uz pomoć Verešove igle. Procedura dalje nalaže da se potom plasiraju četiri radna porta kroz koje se tokom operacije uvode različiti laparoskopski instrumenti. Port promera 12 mm plasira se levo lateralno od prednje aksilarne linije, iznad prednje gornje ilijačne spine, obzirom da se kroz njega stavlja stapler za presecanje hilusa slezine i takođe vadi preparat slezine na završetku operacije. Kamera se plasira kroz port koji je levo i lateralno od pupka. Treći port se nalazi subksifoidno, a četvrti ispod dvanaestog rebra u nivou srednje ili zadnje aksilarne linije. Inspekcijom abdomena konstatovan je uredan nalaz, a nakon toga pristupili smo splenektomiji. Najpre smo slezinske ligamente presekli laparoskopskim ultrazvučnim disektorom (*Laparoscopic Harmonic Scalpel, Ethicon Endo-Surgery, Inc, Cincinnati, Ohio, USA*) sa kojim smo takođe zbrinuli i kratke gastrične krvne sudove. Kao opciju hemostatske tehnike za vaskularne elemente hilusa slezine upotrebili smo endovaskularni stapler (*Endo GIA, Autosuture, Covidien, Mansfield, MA, USA*) (Slika 2). Nakon učinjene splenektomije slezina je plasirana u polietilensku kesu za ekstrakciju, potom je učinjena instrumentalna destrukcija slezine na manje

al position and the so-called *hanging spleen* technique was applied. After that, artificial pneumoperitoneum was created with the aid of a Veress needle. The procedure further dictates the placement of four working ports which are used to introduce different laparoscopic instruments during the surgical procedure. A port of 12 mm in diameter is placed laterally left to the anterior axillary line, above the anterior superior iliac spine, since it is used to introduce the stapler for cutting the splenic hilum and removing the splenic specimen at the end of the operation. The camera is introduced through the port which is located left and laterally to the navel. The third port is placed subxiphoidally, while the fourth one should be below the 12th rib at the level of the middle or posterior axillary line. Inspection of the abdomen resulted in a normal finding, upon which we commenced with splenectomy. First, we cut the splenic ligaments with a laparoscopic ultrasonic dissector (*Laparoscopic Harmonic Scalpel, Ethicon Endo-Surgery, Inc, Cincinnati, Ohio, USA*), which we also used for the short gastric blood vessels. As an option for the hemostatic technique for vascular elements of the splenic hilum we applied the endovascular stapler (*Endo GIA, Autosuture, Covidien, Mansfield, MA, USA*) (Figure 2). Upon splenectomy, the spleen was



Slika 2. Intraoperativna hemostatska tehnika (endovaskularni stapler)

Figure 2. Intraoperative hemostatic technique (endovascular stapler)

fragmente i njihovo vađenje iz trbuha. Preparat slezine poslat je na definitivnu histopatološku verifikaciju. Na kraju operacije postavili smo dren u levi subfrenijum, eksuflirali gas i mesta portnih incizija rekonstruisali po anatomskim slojevima.

Postoperativni tok je protekao bez komplikacija, abdominalni dren je izvađen drugog postoperativnog dana, a pacijentkinja je otpuštena sa klinike trećeg postoperativnog dana. Postoperativno, kod pacijentkinje je sprovedena profilaktička primena antibiotske terapije, kao i imunizacija pneumokoknom, meningokoknom i Hib vakcinom, prema aktuelnim literaturnim vodičima i smernicama za sprečavanje nastanka i lečenja postsplenektomijske sepse - OPSS (engl. *overwhelming postsplenectomy infection - OPSI*).

Definitivna dijagnoza postavljena histopatološkim pregledom pokazala je da se radi o inflamatornom miofibroblastnom tumoru slezine.

Mikroskopski opis – jasno ograničena tumefakcija bez kapsule, sastavljena od mešovite ćelijske populacije, koju čine umnoženi stromalni elementi, posebno izdužene fibroblastolike i miofibroblastolike ćelije, umnoženi krvni sudovi, kao i mešovita limfoidna infiltracija unutar koje se mogu videti dominantno limfocitni i mestimično plazmocitni elementi, uz retko prisustvo granulocita i histiocita. Mestimično se uočavaju krupne ćelije hiperhromatičnog jedra, bez značajne nuklearne atipije ili pleomorfizma. U pojedinim područjima se vidi mestimična storiformna histološka organizacija, a retka su područja hipocelularnosti. Ne uočava se prisustvo tumorske nekroze niti značajnija mitotska aktivnost.

Pacijentkinju smo pratili i kontrolisali nakon hirurške intervencije. Mesec dana nakon operacije urađen je kontrolni UZ abdomena – sa urednim nalazom; 6 meseci nakon operacije urađena je magnetna rezonanca abdomena (NMR) – takođe urednog nalaza; a potom, na svakih 12 meseci, rađen je kontrolni NMR abdomena, uz praćenje laboratorijskih parametara na tromesečnim kontrolama.

DISKUSIJA

Ovo oboljenje su prvi opisali Kotelingam i Džafi 1984. godine i od tada je opisano približno 114 slučajeva u svetu [2,3].

Inflamatorni pseudotumor se može javiti na raznim organima, uključujući oko, pluća, digestivni trakt, slezinu. Generalno, benigni tumori slezine predstavljaju redak entitet, sa incidencom od 0,007 % u opštoj populaciji, s tim da inflamatorni pseudotumor slezine ima još manju učestalost [3,5].

Patogeneza ovog oboljenja je za sada nepoznata. Postoji nekoliko faktora koji mogu biti potencijalni uzročnici nastanka inflamatornog pseudotumora

placed in a polyurethane extraction bag, the spleen was then morcellated with surgical instruments and the fragments were then removed from the abdomen. The splenic specimen was sent for definitive histopathological verification. At the end of the procedure we placed a drain in the left subphrenium, let out the gas, and reconstructed the sites of the port incisions by anatomical layers.

There were no complications during postoperative recovery, the abdominal drain was removed on the second postoperative day and the patient was discharged from hospital on the third postoperative day. Postoperatively, the patient received prophylactic antibiotic therapy as well as pneumococcal, meningococcal and Hib vaccines, as recommended by current guidelines in literature for preventing and treating overwhelming postsplenectomy infection (OPSI).

The histopathological finding showed a definite diagnosis of inflammatory myofibroblastic tumor of the spleen.

Microscopic description: clearly delimited tumefaction without a capsule, composed of a mixed cell population, comprising multiplied stromal elements, especially elongated fibroblastoid and myofibroblastoid cells, multiplied blood vessels, as well as a mixed lymphoid infiltration within which dominantly lymphocytic and sparsely plasmacytic elements can be seen, with a very few granulocytes and histocytes. Sporadically, large cells with hyperchromatic nuclei are visible, without significant nuclear atypia or pleomorphism. In individual areas, sporadic storiform histological organization is evident, and areas of hypocellularity are rare. There is no evidence of tumorous necrosis or of significant mitotic activity.

The patient was monitored and controlled after the surgical procedure. A month after the operation, a follow-up US of the abdomen was performed and a normal finding was obtained; 6 months after the operation, magnetic resonance imaging (MRI) was performed, which also produced a normal finding; subsequently, a follow-up MRI of the abdomen was performed every 12 months, and laboratory parameters were monitored at each check-up (every three months).

DISCUSSION

This disease was first described by Cotelingam and Jaffe in 1984, and since then 114 cases have been described in the world [2,3].

Inflammatory pseudotumor can occur in various organs, including the eye, the lungs, the digestive tract, the spleen. Generally speaking, benign tumors of the spleen are a rare, with an incidence of 0.007% in the general population, while inflammatory pseudotumor of the spleen has an even lesser frequency [3,5].

slezine: imunološki poremećaji, neoplastični procesi, bakterijske infekcije, uzročnici vaskularnog porekla, a postoji i par opisanih slučajeva koji ukazuju na moguću vezu sa Epštajn-Bar virusnom infekcijom [5,8,9].

Ne postoji tipična klinička slika ovog oboljenja. Simptomatologija može biti odsutna ili postojati u vidu nespecifičnih tegoba, mučnine, nadimanja, osećaja nelagodnosti, groznice, splenomegalije i bolova u trbuhu, ili u vidu simptoma koji ukazuju na postojanje maligniteta. Oboljenje se dijagnostikuje kao uzgredni nalaz u sklopu dijagnostike drugog oboljenja [3,8,10]. Laboratorijske analize su uglavnom u referentnim vrednostima, s tim da su opisani pojedini slučajevi sa hiperkalcemijom i hipergamaglobulinemijom [11].

U slučaju koji predstavljamo, simptomatologija je bila nekarakteristična sa povremeno izraženom nelagodnošću i nespecifičnim bolovima u gornjem levom hipohondrijumu abdomena.

Radiološka dijagnostika nije pouzdana u smislu postavljanja definitivne dijagnoze ovog oboljenja. Dostupni podaci govore da se radi o hipoehogenoj masi u slezini, koja može sadržati kalcifikate, ali i ne mora [10]. Diferencijalno dijagnostički, ovakve promene na slezini mogu odgovarati nekim oboljenjima slezine poput apscesa, hemangioma, limfoproliferativnih oboljenja i hematoma [12,13].

Iz dosadašnjeg višegodišnjeg iskustva u lečenju oboljenja slezine, a takođe prateći savremene principe lečenja pacijenata obolelih od benignih tumora slezine, nismo zagovornici primene preoperativne histopatološke dijagnostike, koja se postiže primenom aspiracije finom iglom, zbog brojnih nedostataka ove procedure i stava da je splenektomija jedini ispravan modalitet lečenja [14,15].

Splenektomija, laparoskopska ili klasična, predstavlja za sada jedini modalitet lečenja ovog oboljenja. Obzirom da se laparoskopska splenektomija smatra zlatnim standardom u lečenju gotovo svih oboljenja slezine, svakako joj treba dati prednost u odnosu na otvorenu hirurgiju, zbog opštepoznatih pozitivnih rezultata koji se postižu ovim hirurškim pristupom [12].

S obzirom na to da u našoj ustanovi postoje tehničkih uslovi, kao i obučeni tim stručnjaka za primenu minimalno invazivnog pristupa u lečenju oboljenja slezine, nismo imali dilemu koju operativnu tehniku treba primeniti.

Nakon splenektomije, udaljeni rezultati lečenja su dobri, nisu zabeleženi slučajevi recidiviranja ili metastaziranja. Ipak, preporučuje se kliničko praćenje, s obzirom da je kod nekih pacijenata sa inflamatornim tumorom jetre zabeležen smrtni ishod, koji neki autori povezuju sa osnovnom bolešću [16].

The pathogenesis of this disease remains unknown. There are several factors which could be potential causes of inflammatory pseudotumor of the spleen: immunological disorders, neoplastic processes, bacterial infections, vascular causes; and there have been several described cases indicating a possible link with the Epstein-Barr viral infection [5,8,9].

There is no typical clinical presentation of this disease. Symptomatology may be absent or may present in the form of nonspecific complaints, nausea, bloating, discomfort, fever, splenomegaly and abdominal pain, or in the form of symptoms that indicate the presence of malignancy. The disease is diagnosed as an incidental finding within diagnostic procedures carried out for other diseases [3,8,10]. Laboratory analyses are usually within the reference range, with individual reported cases of hypercalcemia and hypergammaglobulinemia [11].

In the case we are presenting, the symptomatology was uncharacteristic, with occasional discomfort and nonspecific pain in the upper left hypochondrium of the abdomen.

Radiological diagnostics is not reliable in establishing a definite diagnosis of this disease. Available data confirm that this is a hypoechoic mass in the spleen, which may or may not contain calcifications [10]. Speaking in terms of differential diagnosis, such masses in the spleen may indicate other diseases of the spleen, such as abscess, hemangioma, lymphoproliferative diseases, and hematoma [12,13].

From our experience of many years in treating diseases of the spleen, and also based on the current principles of treating patients suffering from benign tumors of the spleen, we do not advocate preoperative histopathological diagnostics, which is achieved through fine needle aspiration, due to the many disadvantages of this procedures and based on our belief that splenectomy is the only correct modality of treatment [14,15].

Splenectomy, laparoscopic or classic, is, at present, the only modality of treating this disease. Since laparoscopic splenectomy is considered to be the golden standard in treating almost all splenic diseases, it should definitely be the first choice, before open surgery, due to the generally well known positive results that are achieved with the application of this surgical approach [12].

Since our hospital has the appropriate facilities and equipment, as well as a team of experts trained for applying the minimally invasive approach in treating splenic diseases, we had no dilemma when selecting the operating technique in this case.

After splenectomy, long-term results are good, and cases of recidivation or metastasizing have not been recorded. Nevertheless, clinical follow-up is recommended, since death of some patients with inflammatory

ZAKLJUČAK

Miofibroblastni tumor slezine predstavlja nepoznanicu u smislu nastanka, sa veoma oskudnom i nespecifičnom prezentacijom simptoma, te se uvek mora ozbiljno pristupiti svakom pojedinačnom slučaju. Ne pouzdanost preoperativne radiološke dijagnostike, i pored primene savremenih dijagnostičkih procedura, u smislu postavljanja dijagnoze ovog oboljenja, iziskuje ozbiljan multidisciplinarni pristup u njegovom lečenju, te upravo iz tog razloga laparoskopski pristup, uz sve svoje prednosti u odnosu na otvoreni pristup, predstavlja efikasan i siguran modalitet lečenja, sa boljim trenutnim i udaljenim rezultatima lečenja od klasičnog hirurškog pristupa.

Sukob interesa: Nije prijavljen.

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tumor of the liver has been recorded, and some authors connect this outcome to the underlying illness [16].

CONCLUSION

Myofibroblastic tumor of the spleen is of unknown origin, the presentation of its symptoms is very limited and nonspecific, which is why each individual case must be approached very seriously. The unreliability of preoperative radiological diagnostics in establishing a diagnosis of this disease, despite the application of modern diagnostic techniques, requires a serious multidisciplinary approach in its treatment, which is why the laparoscopic approach, with all of its advantages (as compared to open surgery), represents an efficient and safe treatment modality, with better short-term and long-term results than the classic surgical approach.

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