AnnalsofClinicalandMedical Case Reports

CaseReport ISSN2639-8109Volume7

ARareAssociationofaRupturedMiddleColicArteryGiantAneurysmandACeliac Artery Dissection -ACase Report and Literature Review

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Keywords:

Aneurysm;Superiormesentericartery;Celiacartery; Middle colic artery angiography; Rupture

Received: 14 Sep 2021
Accepted: 05 Oct 2021
Published: 09 Oct 2021

Citation:

Mabrouka B,ARareAssociation of a Ruptured Middle ColicArtery GiantAneurysm andACeliacArtery Dissection-ACaseReportandLiteratureReview.AnnClin Med Case Rep. 2021; V7(11): 1-4

1. Abstract

The occurrence of rupture is the worst among the circumstances of the discovery of a Superior Mesenteric Artery (SMA) branch aneurysm. Despite it remains a rare event, many cases have been reported in the literature. The occurrence correlation of a pancreatico-duodenal aneurysm with isolated celiac artery injury has been proven. However, the association of the middle colic artery aneurysmwithanisolateddissectionoftheceliacarterywasnever reported. We report the case a 60- year-old woman consulted for acuteabdominalpain.TheComputedTomography(CT)angiographyrevealed,inadditiontoaspontaneousruptureofagiantaneurysmoftheMiddleColicArtery(MCA),adissectionoftheceliac trunkthatisyetmoreexceptionalevent.Thepatientunderwent a critical operation, urgently for his aneurysm. No postoperative complications occurred in the follow-up.

2. Introduction

The aneurysm of a branch of the SMAis a rare and little-known entity. The prevalence documented in the literature is from 0.1 to 0.2%[1].TheMCAisthesecondbranchaffectedafterthejejunal artery that incidence estimated at 0, 28% [2]. The big fear is the occurrence of a rupture, which is a very exceptional cause of an acute intra-abdominal hemorrhage that can occasionally be fatal. Only a few cases of celiac artery dissection without concomitant aortic dissection have been reported in the literature. The association between the two entities is a very exceptional event, withan unknown incidence. The purpose of this article is to discuss thoughtstotheeventualrelationshipbetweenthesetwoextremely rareentities,aswellastoreviewtheirclinicandradiologicappearances and to discuss the different therapeutic modalities.

3. Observation

A 60-year-old woman consulted in the emergency room for isolated acute epigastric stabbing pain. Her medical history included high blood pressure and dyslipidemia. However, she hasn't any historyofcardiacdiseaseortakingananticoagulant.Accordingto family, this abdominal pain had occurred several days before and whichslowlygotworse.Itwasfirstlyintheepigastrium,andthen it has spread towards abdomen with nausea and vomiting.

Intheemergencyroom,thepatienthasastablehemodynamicsta- tus. Her blood pressure was 14/60 mmHg, and his pulse rate was 90 beats per minute. On the physical examination, there was diffuseabdominaltendernesspredominantintheepigastrium,butshe hasn't a fever, peritoneal signs, or jaundice. Blood analysis found elevated white blood cell count (12600/ elements/mm3). Serum amylase, lipase, and other routine blood analysis were within referencelimits.Theabdominalradiogramshowedanonspecificgas pattern.Infrontofthispatient'scondition,intestinalischemiawas highly suspected by surgeons, so an abdominal CT scan was performed.

The abdominal CT angiography detected a round-shaped mass mimicking a vascular structure coming into contact with mesenteric vessels.This mass was approximately 37 mm in diameter. It showed enhancement kinetics synchronously to the opacification of the mesenteric artery with intense contrast uptake dice the arterialphase.Besides,therewasaparietalhematomasurrounding

thismassandspreadingoutintotheperi-pancreaticspace.3Dreconstructionsimageshaveshownreadilythatthisformationwasa saccularaneurysmofthemiddlecolicartery(Figure1A,1B,1C). However,therewerenospecificsignsforsmallbowelischemiaor free intraperitoneal fluid in CT.

Other than this aneurysm, CT detected a flap intimal in the celiac trunk lumen without mural thrombus or extension into celiac branches (Figure 2).However, the abdominal aorta was normal. Therearenovisceralsufferingsigns.Thediagnosisofaruptured aneurysm of MCAassociated with spontaneous celiac artery dissection without visceral repercussions has been retained. So, the patient transferred to a cardiovascular surgery department. Mesentericangiographyhasbeenrequestedforpotentialendovascular management.Butfinally,becauseofasuddendeteriorationofthe patient's hemodynamic constants, the surgery has preferred than endovasculartherapy.Intraoperatively,theexplorationconfirmed theCTfindings.Therewasagiantaneurysmmorethan35mmin thelowerthirdoftheMCA,whichwasassociatedwithaperi-aneurysmal hematoma. However, no other anomaly was found, especiallynosignsofsufferingintestinalsmallbowelsorperitonitis irritation.Ananeurysmectomywithpatchclosureusinganautologousvein.Attheimmediate,thebleedingceasedandhemodynam- ic parameters have stabilized.

The patient has remained in the intensive care department under follow-up for her artery celiac dissection. During the six months of follow-up, no operative complications have occurred, and she was clinically well. No specific lesion has been identified in the histopathologic examination of the resected specimen, as well as, the bacteriological exam was negative.

Figure 1: Axial abdominal computed tomography scan with contrast injection showing

Figure 1A: A giant saccular aneurysm of a branch of the superior mesenteric artery

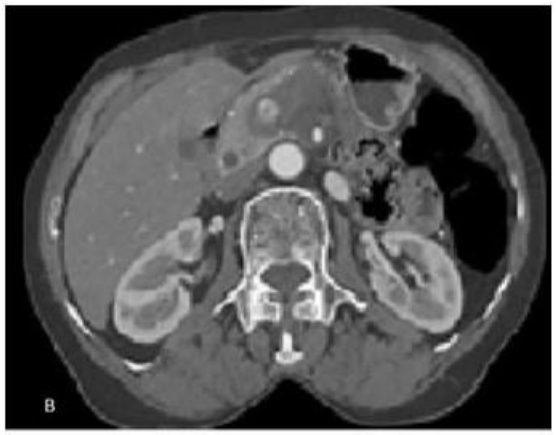

Figure 1B: There was a hematoma surrounding this mass and spreading out into the peri-pancreatic space

Figure1C: Volumerenderingreconstructionshowingatrueaneurysmof a middle colic artery

Figure 2: Axial abdominal computed tomography scan with contrast injection showing a flap intimal in the celiac trunk lumen, in contrast, the abdominal aorta was normal

4. Discussion

Aneurysms of the SMAand its branches are the third most prevalent in the splanchnic tracts after aneurysms of the splenic and hepatic arteries. These of the inferior mesenteric sector are even theleastfrequent,only40-50caseshavebeenreported[3].Among them, this of MCA, which incidence remains yet unknown [4]. Theyareoftenaccidentallydiscoveredduringanabdominalimaging exam.Astheyareassociatedwiththeriskofruptureand Hemorrhage, they are considered a potentially catastrophic condition.

The spontaneous celiac artery dissection without aortic involvement is extremely rare. It was about five times less frequent than SMA dissection. Its pathogenesis remains to be clarified; it has been suggested to be associated with atherosclerosis and hypertension [5].

Themainlyuncommoninourobservationisthesynchronouspresence of aneurysm of MCA and isolated celiac trunk dissection, itself an entity exceptionally encountered. Indeed, the majority of previous publications reported an association of pancreatico-duodenal artery aneurysm with a celiac artery stenosis or occlusion thatiscommonlyrelatedtoatherosclerotic disease,amedianarcuateligamentsyndrome,oracongenitalabsenceofceliacartery[6].

However,itsassociationwithaceliacarterydissectionwasanextremely rare event, only 2 cases with a ruptured pancreatico-duodenalaneurysmassociatedwithceliacarterydissectionhavebeen reported[7].Tothebestofourknowledge,onlyonecaseofasso- ciation of an aneurysm of the middle colic artery with an isolated dissection of the superior mesenteric artery has been reported but no case of association with the celiac artery dissection [8].

Thepathogenesisoftheseaneurysmsremainsasubjectofcontroversy. Several factors have been implicated. It has been reported that50%ofaneurysmsoftheinferiormesentericsectorarerelated to occlusion of the SMA or Celiac artery [3].

Arational explanation has been suggested for this coexistence, is thatthelesionoftheceliacarterycausesdisruptsandhemodynamicchangesofbloodflowinthemesenterictract[6].Thepersistent- ly elevated blood flow through the pancreatico-duodenal arcade, causing later the weaken and fragilization of arteries that leading toaneurysms.Therefore,wethinkthatthesamehypothesiscanbe retained regarding the MCA aneurysm.

There are no specific symptoms attributable to the aneurysm of MCA. If complicated, the most frequent and earlier symptom isa pain ranging from slight abdominal pain to excruciating pain. Taking into consideration rupture risk, even are asymptomatic, treatment is recommended.

The occurrence of a rupture is the worst and the most frequently discovering circumstances (90% of cases).It can be complicatedbycataclysmicinternalHemorrhage,whichcanbefatalwith a case fatality ratio of 25 to 70% [1]. This risk is, correlated with aneurysm size, shape, and location. It seems to occur with a false aneurysm than a true aneurysm [9]. Most cases reported with a ruptured aneurysm of MCA have an aneurysm size of less than 1cm.InOurobservationaneurysmsizewasgiant(35mm)[3].De- spite is not common, but it should be kept in mind, the occurrencepossibilityofothercomplicationssuchasocclusionofsmall arteries by embolism of the blood clot in the aneurysm that can lead to serious gastrointestinal complications including necrosis. The most useful imaging modality for diagnosis is the computed tomography angiography. It allows noninvasive evaluation of the splanchnic vessels.It can detect the aneurysm any their number andtheconcernedarterialbranches.Thethree-dimensionalreconstruction with Multiplanar Reformation (MPR) images has a fundamental interest in this area. Despite the approved value of CT, the crucial tool of exploration remains the arteriography, which adds to his role in diagnosis, its ability to provide a therapeutic gest [10].

Numerous methods and tools for the management of splanchnic arteriesaneurysmshavebeenused.ConcerningMCAaneurysms, the decision of endovascular or surgical management is guidedby the clinical patient condition, when it is unstable, surgery is preferred. Already the most common therapeutic strategy reported in the literature was open surgery. The classic surgical option includes the ligature of the aneurysm with or without resection.In the last years, the modality of endovascular management has arisenasanalternativeforopensurgery.Naitoetalreportedfirstly successful endovascular treatment for the middle colic artery aneurysm[11].After,therehavebeenreportedcaseswithsuccessor failureofendovasculartreatment.Recently,ahybridprocedureis proposed, it is a combination of exclusion, and bypass the aneurysm with coil embolization [6].

Concernedtheceliacarterydissection,moststudiesfavoringconservativemanagement.Strictpressurecontrolandanticoagulation for the prevention of thromboembolic complications seem to be sufficient. Surgery and endovascular procedures are indicated when medical therapy fails to control blood pressure, and when dissectionisprocessing.Itwasdemonstratedthatceliacarterydissection and its branches rarely lead to severe ischemic complications because the organs are usually revascularized by sufficient collateral flow [5]. Although recent literature suggests favorable outcomesaftermedicaltreatmentofceliacarterydissections,there weren'texhaustiveresearchesaboutcomplicationsinthelongrun. As, well as their not innocent association with often ruptured aneurysmsofsplanchnicarteriesthataremoreandmorereported.It may be that is the time to draw attention to this entity to change the care procedures.

References

1. Yoo BR, Han HY, Cho YK, Park SJ. Spontaneous Rupture of aMiddle Colic Artery Aneurysm Arising from Superior MesentericArteryDissection:DiagnosisbyColorDopplerUltrasonography andCTAngiography.

   Clin Ultrasound. 2012; 40: 255-9.

2. ChinoO,KijimaH,ShibuyaM,YamamatoS,KashiwagiH,KondoYetal. Acase report: Spontaneous Rupture of DissectingAneurysmeof the Middle ColicArtery.Tokai JExp Clin Med. 2004; 29: 155-8.

3. Obara H, kentaro M, et Yuko Kitagawa MI. Current managementstrategies of visceral artery aneurysms: an overview. Surg Today.2020; 50: 38-49.

4. HuoCW.MiddlecolicarteryAneurysm:acasereportandreviewofthe literature. Ann Vasc Surg. 2012; 26: 571-1.

5. Hosaka A, Nemoto M, Takyo TM. Outcomes of conservativemanagement of spontaneous celiac artery dissection. Journal ofVascular Surgery Article en press. 2017; 65: 760-5.

6. Meryl A, Simon N, William C. Hybrid Approch to Aneurysms ofpancreaticoduodenal artery association with occlusion of the celiacaxis. Annals of vascular surgery. 2017; 44: 414.

7. KimmuraN,TsuchiyaA,NakamuraA,UedaM,YashikawaS,Hoshi T,etal.Rupturedpancreaticoduodenalarteryaneurysmcausedby celiac artery dissection. Case report Gastroenterol. 12: 385-39.

8. Ham EM, Cho BS, Ye JB, Mun YS, Choi YJ, Kwon OS, et al. Theendovascular treatment of a ruptured aneurysm of the middle colicartery combined with an isolated dissection of superior mesentericartery: report of a case. Vascular and Endovascular Surgery. 2014;48: 352-5.

9. Shiraishi M, Ohki S, Missawa Y. Mycotic superior mesenteric pseudoaneurysm draining into a vein.Interact Cardiovasc Thorac Surg. 2011; 12: 91-3.

10. SoufiM,BouzianeM,HarroudiT,MessrouriR,Mdaghri.J.anévrismedel' artèrehépatiquerévéléparunepancréatite-àproposd'uncasetrevue de litterature. Pan African Medical Journal. 2014; 18: 324.

11. BeckRT.Pseudoaneurysmendovasculartreatmentofamiddlecolic arterialbranchinapatientwithanintermittentdigestivehemorrhage from an obscure source: case report. Vasc Med Surg. 2017; 5: 6.