巨大腹腔游离体及其蛋白质组成1例报道

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【摘要】 腹腔游离体(peritoneal loose body，PLB)是一种发生在腹腔内的病变，临床少见且不易诊断，直径通常小于1 cm。大于5 cm的PLB在临床非常罕见，且PLB内的蛋白质组成尚未见报道。本文介绍1例腹腔内巨大PLB，并对其蛋白质组成进行研究。通过手术探查发现，患者腹腔内有一个白色椭圆形肿块(7.5 cm×5.5 cm×5 cm)。手术切除病灶后，患者恢复良好，于术后第7天出院。取部分肿块组织进行Masson和von Kossa染色，证实PLB主要由胶原纤维和分散的钙化灶组成。使用液相色谱质谱联用仪检测PLB内的蛋白质成分，根据检测结果推测Asporin蛋白(Asporin protein，ASPN)可能在PLB形成过程中发挥一定的作用。

【关键词】 腹腔游离体(PLB)； 钙化； Asporin蛋白(ASPN)； 蛋白质组成

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Giant peritoneal loose body and its protein components：a case report

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【Abstract】 Peritoneal loose body (PLB) is a disease that occurs in the abdominal cavity, which is rare and difficult to diagnose in clinic, and its diameter is usually smaller than 1 cm. PLB larger than 5 cm is very rare in clinic, and the protein composition in PLB has not been reported so far. We reported a case of intraperitoneal giant PLB and study its protein composition. Through surgical exploration, a white oval mass of 7.5 cm×5.5 cm×5 cm was found in the abdominal cavity through surgical exploration. After surgical resection, the patient recovered well and was discharged from hospital on the 7th day after operation. For further study, part of the tumor tissues were stained with Masson and von Kossa, and it was confirmed that PLB was mainly composed of collagen fibers and scattered calcification foci. Then liquid chromatography-mass spectrometry was used to detect the exact protein components in PLB. According to the results, Asporin protein (ASPN) may play a certain role in the process of PLB formation.

【Key words】 peritoneal loose body (PLB); calcification; Asporin protein (ASPN); protein components

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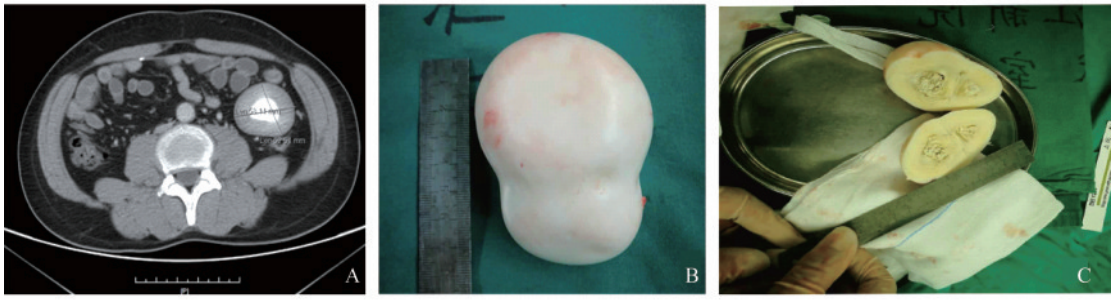
腹腔游离体(peritoneal loose body，PLB)，也称为腹腔鼠，是发生在腹腔内大小各异的病变[1]。PLB最显著的特点是表面光滑，与周围器官没有粘连，包块在腹腔的位置可随体位改变而改变[2]。目前对PLB的发病机制尚不清楚，有学者推测其成因可能是肠脂垂、大网膜等脂肪组织发生坏死脱落，在腹腔内长期伴随血清蛋白质的沉积，中心部分逐渐发生皂化和钙化，最终形成表面光滑的鸡蛋样包块[3-5]。PLB多见于50岁以上男性，直径大于5 cm的PLB非常罕见且易引起非特异临床症状，如腹痛[6]、尿急[7]、肠梗阻[4]等，极易误诊为腹部良恶性肿瘤、肠系膜淋巴结钙化、结核性肉芽肿等[8]。现报道1例伴有腹痛的巨大PLB病例。

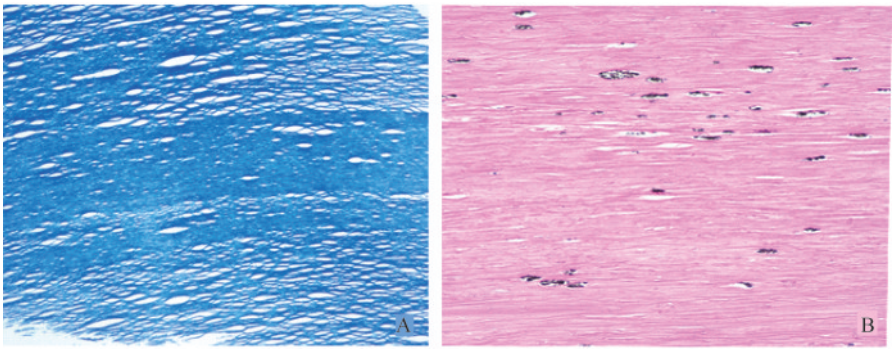
病例资料 男性患者，52岁，因“左上腹疼痛并食欲减退1月余”入院，无恶心呕吐，无大小便异常。腹部CT显示左腹有一光滑的椭圆形病变，中央有钙化点，大小约5.8 cm×5.2 cm(图1A)。患者长期反复腹痛且不能明确病因，CT提示腹部有占位腹部肿瘤可能性较大，因此决定采用剖腹探查。术中探查发现患者腹腔内有粘连，回盲连接处位于左侧且固定于左上腹壁，在小肠间隙发现一个鸡蛋样包块，为白色椭圆形肿块，大小约7.5 cm×5.5 cm×5 cm(图1B)，表面光滑，质韧，与周围组织无粘连。病变有2个钙化中心(图1C)，组织学上由胶原纤维和钙化组织组成，缺乏细胞成分。肿块取出后患者临床症状消失，于术后第7天出院。本例患者虽有腹腔粘连，但未出现肠梗阻，而腹腔粘连一般不会出现疼痛现象，所以我们推测腹痛是由巨大PLB所引起。



A: Abdominal CT shows a smooth oval lesion in the left abdomen with central calcification of about 5.8 cm×5.2 cm; B: The lesion is a white oval mass with a size of about 7.5 cm×5.5 cm×5 cm, which is slippery, tough, no adhesion with the surrounding tissue; C: The lesion has two calcification centers.

图1 PLB的CT图像表现、大体及切面观

Fig 1 CT image manifestation, gross and sectional view of PLB



The lesions were mainly composed of collagen fibers (A, Masson) and scattered calcification foci (B, von Kossa).

图2 PLB在Masson和von Kossa染色镜下的表现(×200)

Fig 2 Microscopic expression of Masson and von Kossa staining in PLB (×200)

蛋白质分析 采用液相色谱质谱联用仪分析病变内的蛋白质成分，共发现686个蛋白质，其中40个蛋白质与胶原纤维和黏附有关(表1)。Asporin蛋白(Asporin protein，ASPN)具有促进胶原与钙结合的作用，并可能诱导胶原钙化。

讨论 PLB在临床上非常罕见，大多数在手术

表1 质谱分析发现与胶原纤维和黏附有关的蛋白质

Tab 1 Mass spectrometric analysis found proteins related to collagen fibers and adhesion

Accession	Gene name	Accession	Gene name	Accession	Gene name
P12111	*COL6A3*	A0A024R944	*SERPINC1*	Q9NRN5	*OLFML3*
B7ZW00	*COL6A3*	P08123	*COL1A2*	Q06828	*FMOD*
P35555	*FBN1*	P02452	*COL1A1*	P08253	*MMP2*
A0A024R462	*FN1*	P02671	*FGA*	P50454	*SERPINH1*
P12109	*COL6A1*	P02763	*ORM1*	P22352	*GPX3*
P12110	*COL6A2*	Q96IY4	*CPB2*	P02461	*COL3A1*
Q15582	*TGFBI*	P98160	*HSPG2*	P05362	*ICAM1*
Q99715	*COL12A1*	P08697	*SERPINF2*	A7MBN3	*COL4A5*
P07585	*DCN*	B5BU38	*ANXA1*	P05997	*COL5A2*
D9ZGG2	*VTN*	P19652	*ORM2*	P39059	*COL15A1*
P01023	*A2M*	Q14767	*LTBP2*	P27658	*COL8A1*
P00747	*PLG*	P05546	*SERPIND1*	P02458	*COL2A1*
P02679	*FGG*	D0PNI2	*LOX*		
D3DTX7	*COL1A1*	Q6P528	*ASPN*		

或尸检时才被发现,只有少数在手术前诊断[9]。张宏等[10]研究了22例PLB患者,发现男性中更为常见,男性和女性的发病率比为18∶4,多发于50～70岁。现在普遍认为,PLB来源于肠脂垂、大网膜等组织的慢性皂化和钙化[11]。腹腔液体在其表面沉积及其与周围腹膜的相互作用被认为是导致PLB表面光滑的原因[3]。本例患者表现为左上腹痛、食欲下降,考虑可能是巨大PLB对周围脏器压迫所引起的。我们通过外科手术治疗消除了患者的腹痛及食欲减退等症状;通过Masson和von Kossa染色证实,PLB主要由胶原纤维和分散的钙化物组成;通过使用LC-MS/MS技术检测到PLB内的确切蛋白质组分。其中ASPN引起了我们的注意,ASPN是富含亮氨酸的小蛋白聚糖细胞外蛋白家族的成员,也称为牙周膜相关蛋白1,首次在人类软骨中发现,其过度表达与骨关节炎有关[12]。ASPN与胶原纤维的形成密切相关[12],并被认为是前列腺癌[13]、胰腺癌[14]和胃癌[15-16]中的一种癌蛋白,但在乳腺癌中被认为是一种肿瘤抑制因子[17-18],同时ASPN可以通过调节间充质基质细胞分化参与肿瘤的转移[19]。最新研究表明ASPN可以防止心肌过度纤维化和细胞死亡[20]。由于PLB主要由胶原纤维和分散钙化灶组成,而ASPN与胶原的形成和钙化密切相关,因此我们推测ASPN在PLB的形成过程中发挥一定的作用。

本文报道了1例巨大PLB相关诊治过程,并对PLB的成因进行了初步探索。一般认为PLB为良性病变,只需定期随访。PLB表现为CT占位,易误诊为肿瘤,CT检查发现病灶呈规则的圆形或椭圆形,边界清楚光滑,中间有钙化,增强CT显示无血供,更重要的是PLB可随体位改变发生移动,这是一个有别于肿瘤的重要鉴别点。因此,怀疑PLB时可以让患者变动体位再做一次CT检查,若发现病灶位置改变,则有助于确认PLB。我们建议先行腹腔镜探查,避免开腹手术对患者造成较大损伤。在临床工作中要注意腹腔影像学变化,一旦发现腹腔内圆形或椭圆形的光滑病变,可考虑PLB,以防误诊或漏诊。

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