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不解剖 GLISSON 鞘区域血流阻断肝脏肿瘤切除 *

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摘要 目的: 探讨不解剖 Glisson 鞘区域血流阻断肝脏肿瘤切除的临床应用价值。**方法:** 回顾性分析哈尔滨医科大学附属第一医院普外科 2000 年 6 月-2013 年 6 月对 40 例肝脏肿瘤患者施行的肝部分切除术的临床资料。将手术分为不解剖 Glisson 鞘区域血流阻断切肝组(A 组) 20 例和第一肝门入肝血流阻断切肝组(B 组)20 例,比较两组术后的手术时间、术中出血量、术中输血量、术后肝功能的恢复、术后并发症以及住院时间等情况。**结果:** 两组在手术时间方面存在明显差异。而其他指标,如术中出血量、术中输血量、术后肝功能的恢复、术后并发症以及住院时间等,A 组也明显优于 B 组。**结论:** 不解剖 Glisson 鞘区域血流阻断技术能够有效控制术中出血,减轻肝脏缺血再灌注损伤,防止术中由门静脉介导的癌细胞肝内扩散,是一种合理的血流阻断方法。

关键词: Glisson 鞘;肝血流阻断;肝切除术

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Clinical Application of “Without Anatomical Glisson Sheath” Regional Vascular Occlusion in Hepatectomy*

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ABSTRACT Objective: To explore the value of clinical application of “without anatomical Glisson sheath” regional vascular occlusion in hepatectomy. **Methods:** This is a retrospective study on the clinical data of 40 patients underwent segmentectomy at the General Surgery Department of First Affiliated Hospital of Harbin Medical University from 2000 to 2013. Among 40 patients, 20 cases (Group A) were performed “without anatomical Glisson sheath” regional vascular occlusion, the rest (Group B) were performed continuous hepatic vascular occlusion. The operative duration, the intraoperative blood loss, the blood transfusion, the postoperative complications, the postoperative liver function recovery and the length of hospital stay were compared between two groups. **Results:** In both groups, there was a significant difference in operative duration. The intraoperative blood loss, the blood transfusion, the postoperative liver function recovery as well as the length of hospital stay in Group A were significantly superior to that in Group B. **Conclusions:** It is “without anatomical Glisson sheath” regional vascular occlusion that is a effective and feasible method that can notably control the amount of blood loss, decrease the residual liver ischemia-reperfusion injury as well as prevent the spread of liver cancer mediated by the portal vein.

Key words: Glisson sheath; Hepatic vascular occlusion; Hepatectomy

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现代精准肝切除所追求的目标是以尽可能小的创伤侵袭来获取对肿瘤的彻底根除^[1],由于肝脏具有复杂的管道系统和丰富的血液供应,因此肝脏肿瘤的手术切除难度大,操作复杂且具有较高风险,但随着对肝脏解剖、生理的深入了解以及精准肝切除^[2]理念的不断深入,肝脏肿瘤切除的成功率明显提高并且达到肝脏肿瘤切除的要求,即完整切除肿瘤组织,并最大限度的保留肝脏的剩余功能。本文主要根据我院近 13 年来肝脏肿瘤的临牀资料,探讨采用不解剖 Glisson 鞘区域血流阻断^[3]下和第一肝门血流阻断下^[4]肝脏肿瘤切除术的手术效果。

1 资料与方法

1.1 一般资料

2000 年 6 月-2013 年 6 月本组 40 例中,男 24 例,女 16 例,年龄 22-60 岁,平均 41 岁,肿瘤直径 4-8 cm,平均 5-6 cm,应用不解剖 Glisson 鞘区域血流阻断技术 20 例,应用 Pringle 法采用常温下阻断入肝血流 20 例。所有患者心肺功能无明显异常,术前肝功能均为 child A 级或 B 级,其中 A 级 30 例, B 级 10 例,且所有患者术前经保肝支持治疗后均调整至 A 级。术后病理学检查: A 组肝细胞癌 10 例,胆管细胞癌 3 例,肝海绵样血管瘤 6 例,肝腺瘤 1 例。 B 组肝细胞癌 10 例,胆管细胞癌 5 例,肝海绵样血管瘤 5 例。两组的性别、年龄、肝功能 Child 分级情况以及术后病理学检查比较均无统计学差异(P>0.05)。

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1.2 方法

1.2.1 血流阻断方法

回顾性分析所有患者术前和术后肝功能恢复时间、术中出血量、术中输血量、手术总时间、术后并发症、住院时间等资料。血流阻断方法:A组为不解剖 Glisson 鞘区域血流阻断组;阻断肝脏肿瘤所在肝段区域血供,保留余肝的正常血供,本组 20 例均采用不解剖 Glisson 鞘区域血流阻断,阻断时间为 17-25 min 一次性完成肝切除。B 组为常规第一肝门阻断组:采用 Pringle 法阻断肝十二指肠的入肝血流,每次不超过 15 min,一次不能完成手术操作时,可解除阻断 15 min 后再次阻断。本组病例中最长 2 次阻断,最长阻断时间为 31 min。

1.2.2 统计学处理 选用 SPSS17.0 软件进行统计学分析,计量资料(数据)以均数 $\pm$ 标准差($\bar{x} \pm s$)表示,计量资料采用 t 检验,计数资料采用 χ^2 检验。以 $P < 0.05$ 为有统计学意义。

2 结果

40 例肝脏肿瘤均顺利切除,无手术死亡,手术时间 140-300 min,平均 226 min,出血量 280-600 mL,平均 430 mL。采用两种不同的血流阻断方法,分别以丙氨酸氨基转移酶(ALT)、血清胆红素、术中输血量、术中出血量、手术总时间、住院天数等相关指标做比较。

术中出血量与输血量:A组分别为 (368.00 ± 51.67) mL 和 (390.50 ± 84.20) mL, B 组分别为 (439.00 ± 80.84) mL 和 (521.00 ± 114.15) mL, A 组明显少于 B 组,有统计学意义($P < 0.01$)。

手术总时间:A组 (198.00 ± 23.92) min 稍低于 (230.50 ± 29.64) min,有统计学意义($P < 0.05$)。从手术时间来看两者之间存在明显的差别。术后肝功能恢复情况:术后 A 组病人 ALT 恢复正常时间 (11.80 ± 1.79) d, TBIL 恢复正常时间 (10.00 ± 1.34) d, 较 B 组 ALT 恢复正常时间 (17.70 ± 1.78) d, TBIL 恢复正常时间 (16.05 ± 1.73) d, 有显著降低($P < 0.05$),差异有统计学意义。提示不解剖 Glisson 鞘区域血流阻断法能有效减轻肝缺血/再灌注损伤,有利于最大限度的保护残余肝功能从而有利于术后肝功能的恢复。

术后并发症发生情况及住院时间:术后并发症(表 2)A 组中发生胆漏 3 例,胸腔积液 2 例,腹水 1 例,切口感染 1 例,无手术死亡。B 组发生胆漏 2 例,非手术治愈,胸腔积液 1 例,腹水 2 例,切口感染 3 例,无手术死亡。术后并发症发生率分别为:35%(7/20),40%(8/20),术后并发症总例数 B 组高于 A 组,两组上述总并发症发生率差异无统计学意义($P > 0.05$)。

两组住院时间:A组为 (18.15 ± 1.95) d, B 组为 (21.85 ± 2.25) d, 差异有统计学意义($P < 0.05$)。

表 1 A、B 两组的比较结果

Table 1 Comparision of the results between the two groups

	Group A, n=20	Group B, n=20	t
The operative duration(min)	198.00 $\pm$ 23.92*	230.50 $\pm$ 29.64	-3.82
The intraoperative blood loss (ml)	368.00 $\pm$ 51.67*	439.00 $\pm$ 80.84	-3.31
The blood transfusion(ml)	390.50 $\pm$ 84.20*	521.00 $\pm$ 114.15	-4.11
ALT recovery time(d)	11.80 $\pm$ 1.79*	17.70 $\pm$ 1.78	-10.43
TBIL recovery time(d)	10.00 $\pm$ 1.34*	16.05 $\pm$ 1.73	-12.37
The length of hospital stay (d)	18.15 $\pm$ 1.95*	21.85 $\pm$ 2.25	-5.55

注:组间比较 * $P < 0.05$,有统计学意义。

Note: The comparison between groups * $P < 0.05$, there is statistically significant.

表 2 A、B 两组术后并发症的比较

Table 2 Comparision of the postoperative complications between the two groups

	胆漏 Bile leakage	胸腔积液 Pleural effusion	腹水 Ascitic fluid	切口感染 Incision infection
Group A	3	2	1	1
Group B	2	1	2	3

3 讨论

肿瘤能否切除不光取决于肿瘤的临床病理分期,更重要的还要考虑肿瘤的解剖位置,肝脏储备功能以及患者全身状况^[5]。^[6]近年来,有临床和病理研究提示肝脏肿瘤转移是沿肝段门静脉在肝内播散,以肝段的解剖学范围来确定实际肝切除的范围,在理论上是有益于患者的预后的^[7]并且由于我国多数患者在明确诊断时已为进展期,因此有文献指出进展期肝癌只要预留肝脏的储备功能保障患者生理需要即可积极行手术治疗^[8]。

不解剖 Glisson 鞘行区域血流阻断的理论基础^[9]:Takasaki 根据 Glisson 系统将肝脏分为三区域:右区域(相当于右后叶)、中区域(相当于右前叶)、左区域(相当于左叶)。其相应的血供分别由 Glisson 右后叶支、右前叶支以及左支支配。因此在进行肝脏右前叶或右后叶切除时,可在切除胆囊后,从胆囊管深面隐窝向下,紧贴肝实质分离肝右段的 Glisson 鞘,可进行肝右后叶切除。剪开肝门板,从肝床上清除胆囊三角的结缔组织,紧贴肝实质分离中段 Glisson 鞘,可进行右前叶切除。若行肝左叶切除术,则切开肝门板,在左右肝蒂分叉处分离肝脏左段 Glisson

鞘,可进行左叶切除。需要注意的是分离过程中要注意解剖层次^[10],避免多余出血,保持术野的清晰。因此,不解剖 Glisson 鞘区域血流阻断,既阻断肿瘤所在区域的血供,又不影响健侧肝脏功能,可最大限度的保护残余肝脏机能。

由于我国 85%以上肝癌患者都合并有不同程度的肝硬化,肝脏储备功能存在损害,所以在部分肝脏切除,麻醉,出血及手术打击后出现肝功能衰竭甚至死亡,因此精准的肝脏功能评估就显得尤为重要。有国外和国内的临床研究资料^[11,12]表明,Child 分级与门脉高压征象和 ICG15 实验可以对肝脏切除的限量做出精确评估。研究发现,ChildC 级是绝对禁忌症。ChildB 级 ChildA 级伴有门脉高压征象或 ICG15>30%的病例只能做亚肝段切除或肿瘤剜除术。对于无门脉高压的 ChildA 级患者,若 ICG-15<10%,则可耐受半肝甚至扩大半肝的切除,其肝切除后预留的体积不少于 40%-50%标准肝体积。ICG-15<10%-19%,只能耐受 2 个肝段的切除,预留应该不少于 60%-70%的标准肝体积,ICG-15<20%-29%,只能切除 1 个肝段或亚肝段切除,预留肝脏应不少于 70%-80%标准肝体积。若 ICG-15>40%,则建议不做任何形式的肝切除,仅行微波固化治疗。我院在进行肝脏肿瘤切除术时选择严格按照标准选择 ICG-15 20%-29%,以及更好的指标来行不解剖 Glisson 鞘区域血流阻断术切除肝脏肿瘤以达到精准肝切除。

充分发挥影像学的优势,术前精确评估肿瘤范围,术中实时影像导航达到^[13]精准肝切除。由于有些较大的肿瘤常侵犯第二肝门,严重者导致肝门的移位,更有甚者侵犯胆道,主干血管和下腔静脉^[14,15],因此有必要在术前行肝脏三期增强 CT 或 MR 加血管三维成像,以明确肝动脉,门静脉,肝静脉的走行与变异以及主要管道系统有无肿瘤侵犯或瘤栓,从而有利于手术方式的选择。术中积极使用超声明确肿瘤的位置、数目、与周围血管间的关系,精确导航,从而避免损伤肝静脉和主要胆管,减少了术中意外出血,最大限度的保留残余肝脏组织,进而避免术后发生肝功能竭。Wakai 等^[16]报道,在 B 超引导下以肝内门静脉为标志施行的精准肝切除明显减少 T1- T2 期肝肿瘤的复发,提高病人长期存活率。

尽量减少术中出血是精准肝切除^[17]的基本要求,选择合适的肝脏血流阻断方法,精确解剖处理肝断面的脉管结构,可以在控制出血的同时有效的减轻缺血再灌注损伤。采用不解剖 Glisson 鞘区域血流阻断术,可以避免采用 Pringle 法阻断入肝血流时对肝脏产生的热缺血再灌注损伤。同时区域血流阻断不影响健侧肝脏血供,避免了健侧肝脏缺血再灌注损伤。其次,由于长时间肝门阻断,使得门静脉淤血加重破坏肠道黏膜屏障而导致肠道细菌移位,从而引起全身内毒素血症^[18]。有动物实验表明,缺血再灌注损伤会引起急性肺损伤^[19]和损害胰腺功能^[20],更有研究表明肝脏的缺血再灌注损伤可能增加肿瘤转移的风险^[21]。而采取不解剖 Glisson 鞘区域血流阻断术,对全身血流动力学影响小,不影响肠道血液的回流,避免了黏膜屏障受损,从而避免了多器官功能不全,有利于病人迅速恢复。

综上所述,应用精准肝切除的理念治疗肝脏肿瘤,除了术前充分评估肝脏一般功能和储备功能之外,还要求外科医生充分综合医学影像学的知识以及实时发挥影像导航的功能,精准判断可切除的区域,最大限度的保留剩余肝的有效机能。在进

行精细肝切除时,要求最大限度的减免手术创伤反应,为此要求术者优先考虑控制出血的问题,合理选择应用血流阻断方法。作者所在单位采用不解剖 Glisson 鞘区域血流阻断行肝部分切除术,能有效避免出血,使得残余肝缺血和淤血的范围明显减少,明显减轻肝脏缺血再灌注损伤,防止术中由门静脉介导的癌细胞肝内扩散^[22,23],是一种合理的血流阻断方法。

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