鯊魚軟骨能治癌嗎？

編輯部

過去三十多年來，鯊魚的軟骨被用來治療各種疾病，例如癌症、乾癬、關節炎、骨質疏鬆症、潰瘍性大腸炎、局部性腸炎、青春痘、硬皮症、痔瘡、過敏性皮膚炎[1-19]。其中令人注意的是癌症治療，原因之一是很多人以為鯊魚不會得癌症。由於在鯊魚的骨骼中軟骨約佔6%[16,18,20]，而牛的骨骼中軟骨佔不到1%[18]，所以鯊魚骨骼自然就引人注意。

由於軟骨裡面沒有血管，因此有假說認為，軟骨細胞可以產生某種成份來抑制血管的形成[21-27]。新血管的形成，又謂之「血管新生（angiogenesis）」，被認為是腫瘤要成長超過幾毫米直徑所必要的步驟。也就是說，腫瘤要超過十萬到一百萬個細胞的時候，它需要有血管帶來氧氣和營養[28-34]。因此，除非腫瘤接上宿主的循環系統，否則它是無法繼續成長的。

血管新生需要至少四個步驟。首先，腫瘤必須讓血管的內皮細胞分泌血管新生因子，例如血管內皮生長因子（vascular endothelial growth factor; VEGF）[31-35]。接著，活化的內皮細胞必須複製分裂產生新的內皮細胞[32,34-37]；再來，複製分裂中的內皮細胞必須朝向腫瘤移動[32-37]；最後，新的內皮細胞必須形成一個中空的管子來變成新的血管[34,35]。有研究發現，腫瘤細胞達到一百個的時候，就啟動血管新生了[33]。如果能在這麼早期時就抑制血管新生，那麼就有可能讓腫瘤完全退化[33]。因此，有許多的動物研究，觀察軟骨製品對雞胚胎、絨毛尿囊膜（chorioallantonic membrane）、兔子角膜或老鼠結膜之血管的形成[21,22,25,27,38-44]。在動物研究中，軟骨產品以各種方式來給予動物，有些研究是口服液體或粉末狀的軟骨產品[15,19,41,43,45-48]，也有些研究是以注射、外敷或植入的方式給予軟骨產品[21,22,25,27,28,38-44]。

軟骨的主要結構成份是膠原纖維蛋白和幾種的醣胺聚多醣（glycosaminoglycan），而硫酸軟骨素（chondroitin sulfate）是軟骨中主要的醣胺聚多醣[34,45]。目前有證據指出，鯊魚軟骨含有至少一種血管新生抑制劑，它是一種醣胺聚多醣成份[44]。其他資料指出，軟骨中大部分抗血管新生的活性並非來自軟骨的主要結構成份[24,27,38]。

除了抑制血管新生，軟骨還有一些醣胺聚多醣具有抗發炎和刺激免疫的能力[1,2,14,16,49,50]，有人認為這些物質或是其分解產物對腫瘤細胞有毒性[2,3,51]。此外，正常軟骨對於外來腫瘤細胞的侵犯具有相當的抵抗力[23-25,27,29,44,52,53]，所以，腫瘤細胞需使用基質金屬蛋白酶（matrix metalloproteinase）從利其轉移[47,52,54,55]。顯然，軟骨裡面確實有幾種成份具有抗腫瘤的活性[2-4,7,15-19,21-23,38,51,54]。因此，軟骨

的抗腫瘤能力機轉可能不只一種。如果軟骨中血管新生的抑制因子也能夠抑制基質金屬蛋白酶的話，那麼同一個分子就能同時抑制血管新生和抑制腫瘤轉移了。

有研究指出，就同等重量而言，鯊魚軟骨的抗血管新生活性比牛的軟骨還要強一千倍[40]。由於有可能從鯊魚軟骨萃取血管新生的抑制子，這個想法自然引起了治療癌症的研究。從1970年起，已有十幾個臨床實驗以軟骨來治療癌症病人[2-4,6-9,15-18,56,57]。近年來，美國國立癌症研究所也用軟骨萃取物對非小細胞肺癌（MDA-ID-99303）、多發性骨髓瘤（AETERNA-AE-MM-00-02）、大腸癌和乳癌（NCCTG-971151）進行臨床試驗。將379名使用化療和電療之非小細胞肺癌的病人，以隨機分布雙盲的第三期臨床試驗來比較鯊魚軟骨（n＝188）和安慰劑（n＝191）的療效，結果發現兩處的整體存活率並沒有統計學上的差別[58]。對於83名無法治癒的乳癌和大腸直腸癌病人，以隨機分布的方法接受鯊魚軟骨或安慰劑加上標準療法，試驗結果發現，這兩組病人的存活率或生活品質並沒有差異[59]。

目前各國衛生主管機關並未核准使用軟骨來治療癌症或其他疾病。所以軟骨產品在市面上都是以健康食品販售。由於健康食品不是藥品，因此食藥署不會要求作上市前評估，除非該產品宣稱能夠預防或治療某種疾病。也因如此，軟骨產品的製造商不作此宣稱，以避免被要求提出證據顯示其產品具有抗癌和其它生物的效能。在此灰色地帶，百家爭鳴，以致目前美國在市面上竟有四十多種品牌的鯊魚軟骨[17]。

目前看來，我們還不知道可否用鯊魚軟骨治癌，不過我們倒是知道，鯊魚自己的確可罹患各種癌症[20,60-62]。

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