临床医学研究: 2022 年 4 卷 12 期
ISSN: 2705-0939(Print); 2705-0475 (Online)

逆行指背神经营养血管筋膜蒂皮瓣修复价值分析

王盛福 韩忠良 俞 瑜
苏州市吴中经济开发区越溪卫生院 江苏 苏州 215104

【摘 要】：**目的：**分析手指中、末节掌侧皮肤缺损治疗中采取逆行指背神经营养血管筋膜蒂皮瓣修复的临床价值。**方法：**选取我院 2017.1.1～2022.9.30 期间 26 例手指中、末节掌侧皮肤缺损患者为研究对象，患者入院后均实施逆行指背神经营养血管筋膜蒂皮瓣修复治疗，观察疗效。**结果：**26 例患者持续随访 3～6 个月，治疗效果显著，皮瓣成活率达到为 100%，术后皮瓣质地良好，无臃肿、外形饱满，未见明显色素沉着；患指皮瓣感觉均有一定程度恢复，且在康复练习下无手指屈伸障碍，能够较为灵活地活动。伤指外观满意度为 92.31%（24/26）；两点辨别觉为（4.91±1.37）mm；术后 3d VAS 评分为（3.41±0.34）分。**结论：**手指中、末节掌侧皮肤缺损治疗中采取逆行指背神经营养血管筋膜蒂皮瓣修复效果显著，术后皮瓣恢复良好，疼痛较轻，患者伤指外观满意度较高，手指灵活性得到有效恢复，可行推广。

【关键词】：指背神经；皮瓣；营养血管；筋膜蒂皮瓣修复；皮肤缺损

Analysis of the Value of Fascial Pedicle Flap Repair

Shengfu Wang Zhongliang Han Yu Yu

Suzhou City Wuzhong Economic Development Zone Yuexi Health Center Jiangsu Suzhou 215104

Abstract: Objective: To analyze the clinical value of reverse dorsal digital nerve nutrient vessel fascia pedicle skin flap in the treatment of palmar skin defects of the middle and distal segments of the finger. Methods: A total of 26 patients with skin defects of the middle and distal volar fingers in our hospital from January 1, 2017 to September 30, 2022 were selected as the research objects. After admission, the patients were treated with retrograde dorsal digital nerve nutrient vascular fascial pedicle flap repair to observe the curative effect. Results: The 26 patients were followed up for 3 to 6 months. The treatment effect was remarkable. The flap survival rate reached 100%. All have recovered to a certain extent, and there is no finger flexion and extension disorder under rehabilitation exercises, and they can move more flexibly. The appearance satisfaction of the injured finger was 92.31% (24/26); the two-point discrimination was (4.91±1.37) mm; the 3-day postoperative VAS score was (3.41±0.34) points. Conclusion: In the treatment of the palmar skin defect of the middle and end segments of the finger, the reverse dorsal digital nerve nutrient vessel fascial pedicle skin flap has a significant effect. The postoperative skin flap has a good recovery, less pain, a higher degree of satisfaction with the appearance of the injured finger, and the finger flexibility has been effectively restored, which is feasible to promote.

Keywords: Dorsal nerve; Skin flap; Nutritional vessels; Repair of fascia pedicle flap; Skin defect

◇掫墇旃嗯婚♂寀嚯她撣憰㉿僈└ 婚♂她┓ 吡甍嗕翾▄◆ 傚勓匸㉿ ⅱnm她刱侜媝奠┣ 圌㉿扇徬⇑ 伉■ 她攉囊┤ 翾勓她扇徥刜┓ 忀屙三翾┆ 吶勓㉿ ⅱ翾┓▌ ♂傚芻屘勓侠復熧復刜憤励┓ └凅中翾屙┘ 咍♂凅中芻屘嗓兑儩× └ 攉囊翾┘ 咢峎刼冶侚墠┓ 翾慶♂憤励┆ 偯媝奠她剽唲[1]暻㉿攉剽唲nm翾哌呋憤励勓懹侧揖媔伝嗚翾懹乙剽唲壤崟nA峎冢㉿她劬岗搢搁翾搤㊦呀扃㉿咕叼她噤夔兟挋⇑ 伉勓侠媳夬夼┤ 翾危亠妄岘尔卞┳ 兑徨卞 ⅱ孌伻┻ ┆ 翾ナ偁μℓ兢岌峹←撓恺嫽囵懹宦宪侠揊翾┘ ┓ 二供啡妄そ侜咽● ⇑ 勓匸匸嫚侠 ⅱ妄岘尔卞傝崠匸撓└ 岌峹嫽侠揊┳ 兑徨勓懹× ⅱ墇恥翾吴凋┳ 六扚傚怎孌× ⅱ她噤夔▾ ㈱宕圓媮妄壔←懥匸妄壔←峻懹妄壔そ侜嫽咦窇┳ ┳ 翾♩怎孌勓咦噤夔nm咕妄壔吳剽徯←搤吡幃←匷埬┓ 憵嫽┓ 惋翾傚芻屘勓匸嗓兑ㄒ峎刱侜咕┆ 偯凅中[2]⇑ 伶屙扚傚勓匸匸嫚侠 ⅱ妄岘尔卞芻屘偳否娫偕咕叼她噤夔咦窇兟牀揯㈤乙デ拳⇑ 傚嗔翾咤嗂娀媲┳ 徥▾ 勃掂 26 〕勓匸┤ ⇐咣嵛危亠妄岘尔卞芻屘┳ 〕暨2017.1.1曾2022.9.30暩翾乙哑┖▾ 憓彐匸岯婧寀帨丿彉嬝嶙惏幃妄壔そ侜她┳ 六叼哖⇑ 匀kΩ俏┓ ⇑

1 资料与方法

1.1 ┆ 崹悚吗

憔㉿勃掂 2017.1.1曾2022.9.30 咱挽 26 〕勓匸┤ ⇐咣嵛危亠妄岘尔卞芻屘┳ 娀媲傚恥翾壳刜 16 〕⇐佶刜 10 〕暻兡斃 17曾60 僖翾挑优暨32.25±7.61暩僖暻㉿×夕掂呀挽 0.5曾8h翾挑优暨2.23±0.54暩h暻崠 ⅱ懹♪┳ 匏匸⇐搫匸⇐┤ 匸⇐墆匸乙ㄒ 9 〕⇐8 〕⇐5 〕⇐4 〕暻㉿ ⅱ㊉伶┳ 壳拴 ⅱ ⇐卩ㄔ ⅱ ⇐升㊉ ⅱ乙ㄒ 13 〕⇐8 〕⇐5 〕暻×揖揖媔 1.0cm×0.5cm曾

4.2cm×1.9cm⇑

宙夕唅ン暉暨1暩优咕呉娩勓侠ㄨkA暻暨2暩×ㄨ♪尥优┳㈹匚匸峻翳优咕岌峹←撓侠揊勹壩翳ㄨ氵嘹唲媝巽┳ 扇巽暻暨3暩咤嗂娀媲嫳μℓ㈤偕❀墠偵呇唅ン暻暨4暩㊣└ 夼〕└ 傻僊优傚娀媲姬剋⇑

卵掃唅ン暉暨1暩勹彉掙娭暻暨2暩崕慡シ瓮孳寁夬夼暻暨3暩┤ 扇処岓岩嫽扇徥岩仗夬夼卞ㄨ暉暨4暩彉回孳寁夬夼暻暨5暩忒姬掙娭勃孤婧孳寁夬夼⇑

1.2 吤噱

1.2.1 妄壔忿忏徼∈偕佢娘

■ 勓匸危≒任咕ㄩ峉优cm匸岯≒勹丁妄史翳ナ└ 匸岯婧寀她匸岯ㄩ峉←帨ノㄩ峉优咕全噴╬ 慄史翳懟扇冽励彉嬝尚翳嗔┳ 咤嗂娀媲徼∈偕佢娘⇑

1.2.2 咦ㄟン供㊦敓戲

崕├ 婧寀捭圾敓戲翳└ ▾ ┐ 岗┐ 嗒彉克翳家μℓ×揖剝儿懟彐凉兴囹×⇑

1.2.3 勓咦叡×

妄壔幃懹听愰埁偯♪╝ 勞屘勓匸慲匸挽デ嵛←┤ 嵛┤ 嗯牞慹嗯暨惟慹匸挽デ嵛 1.0cm 優cal暩暻慦客┳ 勓匸侠≒寵匸婧寀岯≒史悻彐吤cm翳牞匸岯½╬ 壼侚暻勓咦吤唤忿忏┤ 翳关娩こ妄壔侧儀←幃懹抄巽慆偳摠×揖侧 1曾2mm翳揯捨妄壔ㄊ㍿nm採▾ 傚尔卞×揖懟彐徧妽翳匏匸妄壔慲嫚猛伉危嵒实(嫳 2曾5 匸妄壔慲嫚匸愛ピ)ピ翳妄壔冽堳忿忏┳ T 壖堳y牞T 嚶坎堳y ⇑ ▾ 峹log嚨傾┳ 妄壔徼∈兣揖翳ㄧ卤妄壔慦処客㍿定cm牞T Q/ 冽ㄊ氵翳傚媐惏幃懷妄峴ㄊ冗翳╝ 娀妄┐ㄊ媮cm├ ≒翳ㄊ冗幃僭宍 0.8曾1.0cm翳傚妄壔慹嫚ㄊ冗翳ㄊ冗♪尥崟峹惏嚨傾翳伉㊝岌峹嚨揖傚媐惏幃←妄壔ㄊ媮翳幃ピこ壽 1曾2 咽匸岯捏峉丁任咕婧寀岯≒史翳牞匸岯婧寀翳媐惏幃←妄壔愴卻彙揖nA傚懹ㄊ妄峴こ壽翳▾ 娩こ听愰妄壔nm二咕熧復她侠冽⇑ nA傚妄壔ㄊ㍿ㄈ慦処客├ ≒宍 1.0曾1.5cm翳猛伉勓匸岯≒嗓┤ 客←≒嗓┤ 客┻ ピ⇑ 偳否妄壔ㄊ㍿nm翳傚嗒彉克唷嗒翳傚妄壔彉慱懟彐復傒翳嶙嵑俍翳儿nA懟彐妄壔愰媗そ侜匸危≒尔卞⇑ 咦┤ nA懟彐匸岯婧寀←ㄆㄣ(ㄇ)匸任咕婧寀MVμℓ翳 │扉ぇ懟妄壔劉徯扇冔⇑ 晏卻寺μℓ丨(ㄇ)翳嶙妄壔ㄊ㍿慮侧翳採▾ 晏卻寺μℓ翳儿nA懟彐┤ ㊉妄堎圓媮媗啡⇑ 咦nm兑循偳否劉唲揯捨㊦傚失噤夔⇑ 嶙咦nm懹ㄊ妄壔冽励嚶寥翳儿nA处勾揮勞岗崟処峇嚶挑▾ ┐ 翳 │扉ぇ懟揑峉抄嚦⇑ 嶙勞屘咦nm吳岌峹㊦撓撚卞ㄨ翳儿nA懧冶懟彐吹咱匸儻㊝宦├ 翳揯捨デ嵛ウ娥㊦岌峹孔愴⇑ 咦nm优匿寍掫忪 3曾6┤ 咔翳復傒噤夔叼哖⇑

1.3 復傒匸唅

復傒夕掂 26 〕勞屘咦nm妄壔励囊塺←妄壔そ侜叼哖暻kℓ呀復傒勞屘咦nm勓匸劉徯㊦ㄟ峎刱侜叼哖⇑ 寁忏勞屘ㄨ匸侠復均劂巽暨媥偷崕ㄇ均劂巽掷㊡忯♠翳剖忏 100 ㄊ翳忯ㄊ┳ ┌┤ 嫽宎翳▾ 0曾60←61曾80←81曾100 ㄊㄊㄨ傚关┓均劂←慆均劂←均劂翳▾ 均劂└ 慆均劂夼〕同㈱嗺┳ 剖均劂巽暩←├ 垱慡ㄨ徯▾ ㊦太央媝巽暨▾ 徬徯喤匡忯ㄊ噱暨visual analogue scale翳VAS暩忯♠翳剖忏 0曾10 ㄊ翳忯ㄊ惄撣太央惄扇暩⇑

2 结果

26 〕勞屘优夔叼呜帡翳掫忪 3曾6┤ 咔⇑ 勞屘咦nm妄壔优励囊翳妄壔励囊塺慱ㄩ┳ 100%翳┘ 妄壔恺伐嵑俍翳吳崖岨←侠冽搿均翳┘ 咢徨呉呜峊學噉妻⇑ 勞屘勞匸妄壔劉徯优咕┆ 偯媝巽刱侜翳┘ 寀丹侜宦┼┐ 翳咢丁墇勓匸僠㊝掙娭翳nA慆┳ 垢囊伐囊ㄩ⇑

26 〕勞屘ㄨ匸侠復均劂巽┳ 92.31%暨24/26暩暻├ 垱慡ㄨ徯┳ 暨4.91±1.37暩mm暻咦nm 3d VAS 忯ㄊ┳ 暨3.41±0.34暩ㄊ⇑

3 讨论

◇掫墇▸ 婚♂她┓ 吡懟嗕勹僈翳■ ◆ 傚勓侠ㄨnm侠復└ ㄟ峎刱侜她徥嘪┼┐ 吡厒揮暻屙伉■ 孌婚♂壩囊┤ 翳勓侠ㄨ凋凋呖採▾ 偨ダ循懇她翳勓侠ㄨ勍崠妄岘尔卞咍㈦ㄊ兑徨翳伶屙扚傚怎孌×ㄨ扃㍿嫇偕她噤夔兟揯㈦ㄊデ拳⇑ 勓匸匸嫚侠ㄨ妄岘尔卞傝崠岌峹牞匸撓嫽侠揊㈲┳ ┬ 六兑徨勓懹×ㄨ翳吴凋┬ 六扚傚怎孌×ㄨ她噤夔咦窅ooradㄋ㈱宕圓媮妄壔←峻懹妄壔㊦懥匸妄壔そ侜嫽翳┘ 妠デ勓咦噤夔┐ 翳咦nm‾ 猛偳否吡幃翳┘ 咕咦nm妄壔吳剄徯←匷埬┓ 媦嫽挪搔翳傚勓咦嗓兑ㄟ峎偶伉┓ └凅中[3]⇑ 屙关壨匸岯婧寀帨ノ彉嬝嶙崺幃妄壔そ侜匸岯≒妄岘尔卞儿伉こ掙そ侜侠復她佢娘┐ ぇ懟勞屘僥nA峎刱侜懹挲剄徯⇑ 伶屙怎咦窅伉┬ 六┐ 澤ㄈ┓ 全噴她即全关壨⇑ 妠傚嗺㊝寁勓匸≒吤僣堳妄壔翳牞峻懹克幃妄壔そ侜翳怎咦窅僊╝ 兑循勓咦劇咦翳勓咦咱挽猛徥ン供她壨埬优兑循ン供㈲nA翳┘ 勓咦慮媝慆┳ 嬔㈱[4]⇑ 伉憓彐匸岯婧寀帨ノ彉嬝嶙崺幃妄壔そ侜勓咦┤ 翳壯╝ ㄆㄣ ㄨ懹♪ooradㄋ匸岯婧寀翳伶屙勓咦她砮処㈲伉╝ 刱侜ㄆㄣ(ㄇ)匸懹♪匸岯婧寀└ 任咕婧寀她愴卻翳嶙勓咦MVμℓ叼哖嵑俍翳㈲nA峎ぇ懟匸峻懹ㄊ刱侜妄岘姬徥⇑ ♩寀勓咦噤夔咱挽翻襄ㄊ勞屘壯╝ ┃彉┓ 惋翳nA傝崠ナ勓匸妄壔丁墇嚶噉嫽┓ 嵑ㄗ¯关翳嶙┓ ♂凅中妄壔刱侜翳儿戚猛懟彐嬔㈱她囆砻侚墠㈲nA翳┘ 勓咦咱挽猛匸傝勞屘傚勞≒勓崕匈揮翳▾ ぇ懟彉回嚦憟翳寰徼勞屘太央劉⇑ 咦nm翻┓ 怗▾ 寗克嫽儩二懟彐勞≒岗⊡任偯翳kℓ呀猛徥匸傝勞屘憬冶懟彐デ嵛囊ㄩ翳兢伉咦nm僥吹冗僈丹侜忥宦翳▾ ぇ懟勞≒岗⊡僥击刱侜嗓兑她【壨堳分⇑

家μℓ咤嗂娀媲家哖nA徨翳26 〕勞屘咦nm妄壔优励囊翳妄壔励囊塺慱ㄩ┳ 100%翳勞屘ㄨ匸侠復均劂巽┳ 92.31%暨24/26暩暻├ 垱慡ㄨ徯┳ 暨4.91±1.37暩mm暻咦nm 3dVAS 忯ㄊ┳ 暨3.41±0.34暩ㄊ⇑ 復傒勞屘刱侜剝儿nA徨翳ナ妄壔恺伐☞嵑翳吳崖岨←侠冽搿均翳┘ 吳呉呜峊學噉妻⇑ 寀咦nm丹侜

ISSN: 2705-0939(Print); 2705-0475 (Online)

拿垳┓ 罊ナ芻匸妄壔剽徯优咕┆ 偯媝鼻刱侜罊吳勓匸僠㇂掙娭罊峎侔慆┳ 垽囊伐囊ㄩ⇑ 壯嗔nA徨罊扚傚勓匸┫ ⇐咣嵛危≒妄岘尔卞芻屘偳否憓彐匸岯婧寀帨丿獷嬝嬝崺幃妄壔そ侜噤夔峎侔ぇ甍芻屘妄卞そ侜罊昆澤嵑俍她侠復均劂鼻罊┘芻屘咦nm勓匸剽徯㊦ㄒ峎咕吳呜俍愰罊恒nm嵑俍⇑ㄛ哑nA徨罊傚嗺㇉寁她峻懹克幃妄壔㊦勓匸≒吤僣堳妄壔勓咦罊扃ᶠᵍᵃ憓彐匸岯婧寀帨丿獷嬝嬝崺幃妄壔そ侜噤夔┫ ┓ 猛徥【壨侜咭她忿供罊┘ 勓咦叡× 傚勴咦她徥嘪妠傚慆♫罊嗺慆嬔㈹吠偕罊勓咦劻ㄒ塺慆撣⇑

│勓懹她徼∈偕堡垍咾妧罊┳ 憵关勓ㄒ峎猛徥罊勓危≒妄岘┆ 崹二咕俏┓ 堡垍暺▾ 咱罊德丱傾㊉nA咕叼包卄侠堜她ぅタ罊兢屜ᵍᵡᶰ咪啉刜叁只⇑ ナ┘ 罊危≒偊伉慆俑妄实罊nA咕ㄩ┛ 侈—妄岘└ 堜⊡挽她叁只孳同罊咕ㄩ┛ 哈愿唷伐勴博寀儀堜⊡⇑ ナ┏ 罊勓危≒妄岘冰刜慆儳⇐媗ㄩ刜慆儀罊哈咕ㄩ┛ 勴厖匷堜罊♩┓ ㄴ┛ ×ᶤ⁻圖㎌⇑ 屑勓匸咣嵛危≒妄岘└ 妄┓ 宦宪咪响哈┳ 侜咭罊ナ┳ 徥 │慹≒匸挽嵒实崟匸储罊妄岘㊉異nA侈—ㄖ 3 づ罊 危≒妄岘┐ 侯傾ピ偊伉湊俑婧寀儀⊡罊傮ナ▾ 1⇐2⇐3 勓匸咣嫚慆俑⇑ 嗓呖ᵍᵡᶰ ㄖ勓徼∈偕堡垍凅中罊┆ 吶匏匸危≒妄岘ᵃᵇᶜ壩尔卞凋凋採▾ 崶彐挶㎌罊嶙◑ ナ崶埘圖㎌罊ㄦ凰埘♂咕奄夸冽励罊憤励勓ㄒ峎掙娭⇑ 叻展庬ㄖᵍᵡᶰ ⁸懹♪ ᵒᵒradsㄖ岯婧寀罊叻展庬ㄖ芻屘勓懹×ᶤ⁻圖㎌㊦咦nm勓匸ㄒ峎她刜侜罊怎勓咦她啓处傲伉┛ ぇ甍ᵍᵡᶰ(ㄇ)匸懹♪任咕婧寀└ 匸岯婧寀愶卻她刜侜罊俏哖勓咦MV㎌叼哖嵑俍罊儿nAぇ甍匸峻懷ㄛ妄岘姬徯刜侜⇑ 屑伉偳否憓彐匸岯婧寀帨丿獷嬝嬝崺幃妄壔そ侜噤夔┫ 罊儿nA伉┆ 偯媝奠┓ 傚懹ㄛ懥匸宦宪壔屑愰そ侜匸岯妄岘尔卞甍彐咒▸ 罊屑幃懹慆懥匸屑愰宦宪壔儀罊伶屑勓咦家咻nmnA僥吹僠㇂囊ㄩ │(ㄇ)└ 芻≒勓匸罊懇シ伶抄呀挽任偯憤励勓匸僠㇂掙娭⇑ 叻怎咦窅伉勓匸┫ ⇐咣嵛危≒妄岘尔卞噤夔┫ nAᵃᵇᶜ午媔哌× 壨⇑ ㄛ哑怎咦窅她☞ㄙnA徨罊危岯嬝崺妄壔二咕獷慱划偯⇐叡× 媿㈹她☞ㄙ罊二供┫ 傌她獷嬝尚堳家响㊦慆撣她咦nm励囊塺暻妄壔┓ radsㄒ咕扇徥獷嬝婧寀罊│(ㄇ)凅中慆儀暻妄壔惤慮危匸デ嵛伉慲嵛匸罊劬唯岯≒愰媗罊nA咕叼循懇愛(ㄇ)崖岨罊挋捨咦nmㄒ峎掙娭㊦匸愛奄夸匿尅ᵃᵇᶜ壩暻妄壔侠冽刜侜嵑偯罊吳崖岨ᵃᵇᶜ壩罊┘ 嗺慆峻懹克幃妄壔罊勓咦峎侑┆ 嗂偨励罊nA侧侧一愿芻屘太夼劉罊ぇ甍ナ咦nm僥吹刜侜⇑ ♩怎咦窅┣ 咕┆ 偯┓ 惋罊咦nm偊伉妄岘劉徯儻她挪搔罊伶屑伉偳摠勓咦噤夔┫ 罊慶猛徥家㎌芻屘偳摠夼剝運偕ㄇ偯叡× 吤唤罊▾ こ掙勓咦叼哖罊ぇ甍挋nm⇑ 嗔俠罊┳ こ掙勓咦叼哖罊慶猛徥伉勓咦噤夔┫ 噻劂俏┓ 挪搔暺ナ┆ 罊猛傚尔卞×揖甍彐凉兴囹×罊倻吳壟咪宦宪⇐嘹唲宦宪偨ダ囹掃罊凉兴甍彐×揖嗒獷⇑ ナ┘ 罊妄壔ピ危岯婧寀♪ ┛ 妄┓ 罊猛倻ナ偨后克タ妄壔罊└ ᵍᵡᶰ(ㄇ)匸危≒任咕婧寀觔匸岯婧寀慲嫚甍彐ヨ娊MV㎌⇑ ナ┏ 罊忿忏妄壔猛处侧┛ ᵍᵡᶰ(ㄇ)尔卞揖媔罊挋捨妄壔愰♪nm壯┛ 岨岩傝崠伙嚦掙娭罊憤励妄壔懹ㄛ伝嗚罊慶猛倻幃懹憵冶冒抄 0.5cm⇑ ナ仭罊噻劂こ勿岌峹侠崺罊▾ 娊こ啡妄励囊罊灼傚儀揖媔│(ㄇ)nA甍彐旻卻寺㎌⇑ ナ╟ 罊ㄛᶠᵍᵃ妄壔慮婺┫ 罊关噻劂寔匷彊嬝嬝崺惛寍刜罊伉惤危匸デ嵛甍彐妄壔幃懹ㄛᶠᵍᵃ┫ 罊┆ 偯徥こ掙偨后刜└ 惛寍刜罊懇シ旻卻圓媮⇑ ナッ罊匸岯勓惤危匸デ嵛侚ㄛᶤ⁻猛▾ “S”冽ㄛ冗罊挋捨咦nm奄夸匿尅⇑ ナ┌ 罊咦nm猛媔哌冗僈囆岨⇐勷垠⇐号亂凡瀆墆嫽傚失噤夔罊兢傚妄壔彊慱甍彐┤ 偵復傒罊㊦呀傚妄壔㈱恥甍彐侚墠罊娊こ勓咦叼哖└ 偑ダ刜罊ぇ甍芻屘勓ㄒ峎└ 剔徯她刱侜⇑

寬┐ 罊噤夔勓匸┫ ⇐咣嵛危≒妄岘尔卞咱挽罊关壨憓彐匸岯婧寀帨丿獷嬝嬝崺幃妄壔そ侜咦nAᵃᵇᶜ午嵑俍叼哖罊┘ 怎咦窅叡× 慆┳ 媿㈹罊芻屘咦nm芻岗刱侜慆击罊扁┘ ┣┓ ♂伶噤夔ᵃᵇᶜ扁傚ナ▥ ㄩ峚⇐婧寀、 壟卞ᵃᵇᶜ罊┘ 咦nm彙揖復傒妄壔吳崖岨剝ルㄒ墇罊┣┓ ♂ㄒ墇呉呜嵒學暾团罊芻屘咦nm寀┆ 嗯呀挽捏丿罊▾ ㊦丹侜忕宦峎侍僥击刱侜ゃ丹堳分罊叻へ澤┳ 六侧嶪佯即全关壨⇑

参考文献：

[1] ㈠凃.憓彐匸岯婧寀帨丿獷嬝嬝崺幃妄壔そ侜勓匸┫ ⇐咣嵛危≒妄岘尔卞[J].┘ 壼呱吣(ㄖ)偕ざ刻吐叁,2019,19(73):78+80.

[2] 塼惛偊,log八吐,偋囁裏,嫽.憓彐匸岯婧寀帨丿獷嬝嬝崺幃妄壔そ侜懥匸岯≒妄岘尔卞[J].┳ 六撓娪咭凰,2021,24(1):55-57.

[3] 媏儀墮,彥処一,壮呣帖.ダ㊉妄堎媗啡そ侜勓危≒妄岘尔卞她│(ㄇ)憔匪㊦关壨娀媿甍僈[J].墇▸ (ㄖ)巡(七)壟,2020,36(23):3799-3802.

[4] 懟呣┣ ,敖慌冱,懣╟ ,嫽.匸危≒任咕ㄩ峚岯≒史憓彐僣堳妄壔そ侜勓匸慹嫚妄岘尔卞她┳ 六夔叼㊦偑ダ刜ㄛ哑[J].Mℓ哓(ㄖ)偕,2021,42(12):2838-2840.