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Microsurgical Repair of Dura Mater Rupture Caused by Movement

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Abstract: With the increasing of medical technology, the demand for the repair of the related tissue and organ injury is also growing. At the same time, microsurgery plays an increasingly important role in the successful completion of difficult operations. After the end of spinal surgery, dural rupture and cerebrospinal fluid leakage are relatively common complications. In order to study the micro repair technique of dural rupture caused by surgery, 30 patients with dural rupture were selected in this paper. After MRI showed that there was suspected vascular lesions in spinal canal, all cases were confirmed by digital subtraction angiography. This study showed that after microsurgery, there were 20 patients with excellent evaluation grade, and the average score of aminov score was 0.6, accounting for 80% of the total number of patients; 5 patients with good evaluation grade, with an average score of 4.5 points, accounting for 10% of the total number; 3 patients with medium evaluation grade, with an average score of 6.2 points, accounting for 7% of the total number; 2 patients with poor evaluation grade, with an average score of 8.9 points, accounting for 3% of the total number. In the related evaluation of comprehensive efficacy, 23 cases were cured, accounting for 73% of the number of researchers, 5 cases were improved, accounting for 17% of the number of researchers, 2 cases were unchanged, accounting for 10% of the number of researchers, and there was no worsening case. Therefore, for the dural rupture caused by exercise, the treatment of dural rupture during operation and the comprehensive treatment after operation are very important.

1. Introduction

Dural rupture and cerebrospinal fluid leakage are common complications after spinal surgery. Traditional suture methods are not enough to effectively prevent cerebrospinal fluid leakage. Long-term placement of drainage tube is very easy to cause continuous loss of cerebrospinal fluid, which increases the risk of infection, increases the risk of low-pressure headache, and may even lead to Severe infection, causing a certain threat to life, for the patients with dural rupture after

posterior spinal surgery, it is very important to carry out active and effective treatment in the operation and comprehensive treatment after the operation.

In recent years, the main treatment methods of SDAVF are microsurgery and interventional embolization. Interventional embolization fistula mainly refers to a minimally invasive treatment, which can be treated in time after diagnosis, but the technical requirements of embolization are very high, and there will be a certain recurrence of fistula and treatment failure rate when the embolic agent spreads to the whole drainage vein, it is easy to cause serious consequences, so it has certain limitations in clinical use. Accurate location before operation is a very important key for microsurgery to clamp the fistula. The location of the vertebral body and lamina where the fistula is located is clear, which can help to identify the fistula correctly, relieve the complications related to electrocoagulation, shunt obstruction and spinal vein hypertension to a large extent, and the interference to the spinal cord during operation is very small. Therefore, the current situation is very large most neurosurgeons agree with microsurgery.

In order to explore the effect of microsurgery on AO-C thoracolumbar fractures, Veale et al performed microsurgery on 46 patients with AO-C thoracolumbar fractures. Under the microscope, non-invasive suture was used to repair dural fractures. The results showed that the operation was successfully completed, with an average time of 207 minutes (160-270 minutes) and an average bleeding volume of 680 minutes ml, the average follow-up time was 12 months, there was no back pain or headache and other symptoms. According to the classification of Asia, the postoperative neurological function is improved by 1-3 grades. The research of Valley et al shows that the non-invasive suture repair technology is an effective repair method. Although the non-invasive suture repair technology has good effectiveness, it still lacks certain stability [1]. In order to review the application of aneurysm rupture in the treatment of GIA, Aoki collected the following information for each reported case: the location, size and rupture status of the aneurysm, treatment method, bleeding time, anatomy and hemodynamic factors. The results showed that the most challenging endovascular treatment of GIA was intraoperative aneurysm rupture and delayed rupture, and the rupture of giant VBA aneurysm after treatment FD can improve the rate of delayed rupture of giant bedside aneurysms. Although the intravascular treatment of GIA has good reliability, it still lacks certain practicability [2]. In order to explore the risk factors of early rupture of middle cerebral artery aneurysm (MCA), Hironaka et al analyzed 927 patients with MCA rupture who had been treated for 8 years, and discussed the risk factors. According to the operation stages, early rupture was divided into: craniotomy dural opening, ICH aspiration or resection, frontal lobe retraction, anatomical lateral fissure sphenoidal segment close to the proximal vessels, the study of Hironaka et al showed that patients with sphenoid ridge approach sign, frontal lobe cerebral hemorrhage or short M1 segment before aneurysm had a higher risk of premature rupture of MCA aneurysm during operation. Although MCA had a better accuracy, it still lacked certain stability [3].

In order to study the microsurgical repair technique of dural rupture caused by exercise, 30 patients with dural rupture were selected, 15 of them were male and 15 of them were female, with an average age of 40.3 years. After MRI showed vascular lesions in the spinal canal, all of them were confirmed by digital subtraction angiography. Before operation, the specific position of spinal lamina was determined by X-ray fluoroscopy according to the relevant position of SDAVF fistula A small amount of methylene blue was injected under the operating microscope, and the surface of spinal cord was searched from the drainage vein of fistula.

2. Relevant Contents of Surgical Microscope Treatment

2.1. Operation Microscope

(1) Structure and working principle of operating microscope

1) Observation system

Most of them are composed of the main object lens, binocular tube, and eyepiece and zoom system. The main focus of the main object lens is 150-400mm, and the working distance of the microscope mainly depends on the focus.

2) Lighting system

The modern high-end operating microscope is equipped with a cold light source without infrared components and low heat. The objective lens is directed through the light guide fiber, and two sets of internal and external lighting systems are equipped. The effective combination of the two can greatly improve the clarity and stereoscopic sense of the object [4].

3) Bracket system

The stent is also an integral part of the operating microscope, which can quickly move the observation and lighting system to the designated position to a large extent.

4) Video image acquisition and data management system

The operating microscope is a kind of stereo microscope. When the main object is imaging the object, the beam will be divided into binocular tube by the beam splitting, and the binocular tube will be placed according to the angle of the human body, so the stereo image will be formed under the observation of both eyes.

(2) Main problems of operating microscope

1) Field of view: the field of view based on the microscope is very small, especially in the case of high power; the operating space is often less than 1cm. In addition, the operator and assistant must always fix the important position of the operation in the center of the field of view [5].

2) Line of sight: if you don't have a microscope, you only need to move your head or rotate your eyeball to change your line of sight. However, when using a microscope, because the field of vision is very small, the surgeon's head or eyeball can only move in a very small range, and the eyes should also be attached to the eyes of the eyepiece. In addition, the microscope can only observe in a straight line, this will make many parts enter the blind spot and affect the safety of operation.

3) Depth of field: although the optical design of modern surgery microscope is complex and precise, its depth of field cannot fully meet the needs of surgery to a large extent, especially when observing the structure with a large walking slope or a relatively deep part, the operation microscope can only clearly show a certain part of the area, the ice can completely show the overall situation of the relevant structure, and the operation microscope can see insufficient field depth will affect the observation and operation of complex anatomical structure.

4) Focusing: in order to obtain a clear image, the operating microscope needs to focus on the surgical field repeatedly. At present, although electromagnetic technology has been used to simplify the relevant process of focusing, however, focusing is a time-consuming step [6].

5) Physical strength consumption: in microsurgery, doctors must keep a bent neck position and a long period of static state to carry out fine surgery. In addition, they should use residual light and proprioception to find the switch, use the foot to control the pedal, for example, with the help of an assistant, use the right foot to step on the foot of a bipolar electric coagulator or skull drill, use the left foot pedal to step on the ultrasonic attractor, etc, in general, we have to sacrifice our body comfort to ensure the position of surgeons as much as possible. At present, the long-term intensive operation under the operating microscope has become the price that microsurgery must pay.

2.2. Microsurgical Treatment of Spinal Epidural Tumors

According to their location, intraspinal tumors can be divided into three categories: epidural, extramedullary and intramedullary; most of them are benign tumors with slow onset. The main clinical manifestations are: the compression of the spinal cord, to a large extent, will cause pain, and

at the same time, there will be motor disorders, sensory disorders, etc, the location of the tumor and the relationship with the spinal cord determine the clinical manifestations. Most of the extradural tumors are malignant. The compression of the extramedullary tumors of the spinal cord can cause muscle dysfunction, leading to sensory disorders from top to bottom.

The basic principle of intraspinal tumor is early diagnosis and early treatment, but because the disease will be affected by many factors to a large extent, especially in the early diagnosis, it is easy to cause misdiagnosis and missed diagnosis. At present, the disease has become one of the diseases affecting human health, and the reason of misdiagnosis is largely due to the unknown early symptoms and signs obviously, even if the symptoms such as limb numbness and fatigue occur, they are more like common diseases such as cervical spondylosis and lumbar disc herniation to a large extent, which ignores the initial atypical symptoms, pays attention to the diagnosis and treatment of common diseases, and eventually leads to misdiagnosis or missed diagnosis. The clinical manifestations of intramedullary tumors with different pathological properties are different. In the timely diagnosis, attention should be paid to the unknown symptoms such as root pain, numbness of limbs, fatigue, sensory and sphincter dysfunction [7].

At present, surgical removal of spinal cord compression and restoration of nerve function is still the only effective method for the treatment of spinal tumors; in general, the damage caused by normal surgical methods to the structure of the spinal cord itself can be ignored, but due to the lack of blood supply around the spinal cord, the damage is large, some cases of spinal cord function cannot be restored well, especially the cervical and thoracic spinal cord the existence of spinal cord makes the compensation space less. If the tumor is large and the adhesion with surrounding tissue is heavy, it will make the separation and resection more difficult, which is easy to cause the injury of spinal cord and nerve root to a large extent, and the risk of operation is high.

Fine microsurgery technology can control the interface between tumor and normal tissue to a large extent, so as to protect the related nerve tissue and blood vessels. The specific operation method is: intramedullary glioma, according to the color, it is easy to identify the tumor; after the tumor is exposed, the soft spinal cord incision is hung on the edge of dura mater by 6-0 non-invasive suture, and then in the tumor Sufficient decompression operation is carried out inside, which is helpful to pull out the tumor and separate the interface. Small aspirator, low-power bipolar electrocoagulation and ultrasonic suction device are used to remove the tumor. When separating the interface between the spinal cord and the tumor, the focus of traction separation should be on the side of the tumor, not the side of the spinal cord. When the interface is unclear, only partial resection is carried out to keep the nerve function positive Often, after the relevant part of the tumor is removed, if the decompression is not very obvious, the dura mater can be sutured to a large extent through decompression, which is conducive to spinal cord decompression and edema regression [8].

2.3. Microsurgical Nursing of Dural Arteriovenous Fistula

Dural arteriovenous fistula, as a part of spinal vascular malformation, is a rare disease, but it does great harm to patients, families and society, and has a high disability rate. In the meninges, the arterial blood of the dura enters the root vein through a small fistula, in which the speed of blood flow is not very fast. In general, there will be the disappearance of the normal drainage vein outside the dura and the disorder of the drainage vein system of the spinal cord, the normal pressure gradient of the vein is not very orderly, and the pressure of the spinal cord vein and the disorder of the spinal cord will greatly affect the normal spinal cord vein return The dural arteriovenous fistulas are mostly seen in 40 year old men. The dural arteriovenous fistulas are very slow in onset. The thoracolumbar progressive spinal dysfunction can occur within 6 months to 2 years, and begin to appear single sensory, motor or sphincter dysfunction, bottom-up A few of them were diagnosed as

disc herniation to treat spinal stenosis, which could be diagnosed definitely after no obvious improvement of spinal angiography.

(1) Good nursing of spinal angiography

Because of the occult attack, the course of disease is prolonged and aggravated gradually, it is difficult to diagnose early; many patients have lost the ability of independent activity before being diagnosed and operated, because the dural arteriovenous fistula is small and the blood flow speed is slow, therefore, in the spinal angiography, each small blood vessel supplying the spinal cord must be compared with a certain degree of super selective, and then find out the phase of the fistula The position of closure, the number of fistulas, drainage veins and blood supply arteries, so that the angiographic time of patients will be longer than that of general cerebral vessels. In order to reduce the time of contrast and prevent the excessive filling of bladder, the catheterization should be reserved before the contrast. When the patient returns to the ward after the contrast, the relevant medical staff need to ask the patient to lie down and rest for 8 hours. In addition, the lower limbs at the puncture side should be kept in straight position for 24 hours. In the imaging process, because too much heparin is used for anticoagulation, even if the related protamine is used for some final regulatory aspects, but some of them are still not completely metabolized, and their activity may cause bleeding. Therefore, it is very necessary to observe whether the dressing at the puncture point is dry, whether there is blood seepage in the puncture point, and at the same time, instruct the patient to drink more water It can promote the metabolism system of contrast medium to a large extent, observe the patients' physical activity and related nervous system state, let the patients properly move the toes and legs of the lower limbs, observe the patients' movement function, wipe the patients' lower limbs with cotton swabs, and observe whether the patients' related sensory function is correct Often, to prevent spinal angiography related complications and nerve related function damage [9].

(2) Do a good job of disease observation

It is an indispensable part of postoperative nursing work to observe the patient's condition timely and effectively. The relevant contents of the observation mainly include the main observation contents of the condition, relevant vital signs, mental changes in the body, various related blood biochemical indexes and related acid-base balance indexes. After the routine operation, the patient's back needs to be observed carefully whether the wound dressing is dry, whether there is bleeding and exudation, whether the wound drainage tube is unobstructed, and whether the relevant blood flow and color, at the same time, the relevant medical staff should carefully observe the recovery of nerve related functions. When the patient wakes up after anesthesia, the relevant nurse should carefully check whether the related nerve function of the patient is normal, observe the related lying posture, at the same time, move the left and right limbs of the patient, observe whether there is hemiplegia, raise the lower limbs of the patient up and down, first close the eyes of the patient from the paralyzed side, observe the response of light stimulation, and use needle light stimulation or cotton swab friction to stimulate the left and right In addition, the nursing staff should also pay attention to the patient's self-feeling. When the patient complains that the lower limbs cannot move normally, the nursing staff should check the patient's relevant situation and inform the doctor in time [10].

(3) Nursing of anticoagulant therapy

Since the beginning of dural arteriovenous fistulectomy, anticoagulant therapy has been paid more and more attention. After AVF blocking, the pressure of the related coronary venous plexus around the bone marrow has been reduced to 37% on average. The dysfunction caused by venous hypertension has been restored rapidly. There is no blood flow signal in the coronary venous plexus, and there is "venous congestion", which is easy to cause intravascular thrombosis to a large extent In order to prevent thrombosis, anticoagulant treatment should be carried out to a certain extent on

the third day after operation, so as to provide scientific and effective anticoagulant education for patients, introduce the relevant significance and methods of anticoagulant treatment to patients, and strive for the active cooperation of patients, so as to be able to timely take relevant blood samples for examination to a large extent, get relevant report results, and check whether it is under control Within the relevant scope, if any abnormality is found, it is necessary to report the relevant situation to the doctor as soon as possible, and observe whether there is bleeding in the nursing process. When the patient completes the relevant injection operation, it is necessary to remind the patient that bad eating habits will greatly affect the anticoagulation effect [11].

(4) Do well in the training of rehabilitation function

Bladder dysfunction caused by neurogenic bladder dysfunction will lead to infection of bladder and urinary tract to a large extent, which will lead to death. The ultimate goal of neurogenic bladder functional rehabilitation is to establish Autonomous Urination as early as possible, so try not to remove the urinary bag [12].

3. Microsurgical Nursing of Dural Rupture

3.1. Preoperative Preparation

(1) Preoperative visit

It is very important to visit the patients with dural rupture before operation. In general, paraplegia patients are prone to pressure sores, urinary tract infection, and a series of other related situations. During the preoperative visit, we should know the general physiological conditions of the patients, so that we can make preparations in advance and take relevant protective measures. Moreover, the preoperative treatment should be to the psychological nursing of patients has certain effectiveness.

(2) Item preparation

Preparation of articles: waist set, related disposable articles, preparation of special articles: microscope, aseptic microscope set, micro instrument, 0-4 ℃ ice salt water (injection of 0.9% sodium chloride), sterile vein retention needle, 20ml empty needle, etc.

(3) Position placement

After general anesthesia, the patient's body position is usually placed in a 90 °horizontal position. During anesthesia, the head and respiratory tract are protected. The surgeon protects both sides. The itinerant nurse stands at the end of the bed to participate in the operation. When turning around, special attention should be paid to keep the patient's body axis in the same line. At the same time, keep the bed clean, dry and flat, and protect the hip joint, shoulder joint and tail from compression To a large extent, it can ensure that each limb is in the correct functional position.

3.2. Key Points of Intraoperative Cooperation

(1) Operation cooperation and management under microscope

Before the operation, the itinerant Nurse shall assist the surgeon to select appropriate lenses, connect the microscope, video recorder and computer, turn on the switch of relevant equipment, test the function of equipment, assist the surgeon to put on the sterile microscope cover, adjust the frame and operation brightness. In the process of precise operation of dural scar and tension relief, in addition to the skilled microsurgery technology required by the surgeon himself, the operating room nurses are also required to provide high-quality nursing cooperation. The equipment nurses should pay close attention to the operation progress, prepare the items needed in the next step predictably, deliver the items in a "light, stable and accurate" way, and manage the items on the operating table All items and tools.

(2) Use of bipolar electrocoagulation

Bipolar electrocoagulation refers to the use of two tips of bipolar forceps to provide a certain amount of high-frequency electric energy to the relevant tissues of the human body, so as to dehydrate and coagulate the blood vessels between the ends of bipolar forceps, so as to achieve the main purpose of hemostasis. The scope of bipolar electrocoagulation is only between the two ends of forceps, which will not cause great damage to human tissues to a large extent. Therefore, for the relevant operations, it is very important to In this case, it is recommended that surgeons use bipolar electrocoagulation, which can not only avoid the risk of scald caused by metal implants to a large extent, but also help to hemostasis and other operations on small tissues under the microscope.

(3) Use of ice salt water

Relevant research shows that the application of ice salt water perfusion in spinal cord injury can greatly reduce the metabolism of nerve tissue at the injured site, thus delaying or reducing the pathological process related to spinal cord injury, achieving a more scientific and effective treatment effect. Salt water perfusion can greatly reduce the residual bone fragments in spinal canal after spinal cord injury, so as to reduce the related scars the occurrence of adhesion.

3.3. Postoperative Transport

After the operation, anesthesiologists, surgeons and itinerant nurses should lift the patient up smoothly. When a person holds the patient's head, the head and trunk must rotate at the same time to keep the neck fixed and carry out relevant axial rotation. At the same time, itinerant nurses should check the patient's skin condition and limb function in detail to ensure that all kinds of pipes are kept smooth to a large extent No obstruction.

4. Experiments and Discussion

4.1. Experiment

(1) Subjects

There are 30 cases in this group, 15 male and 15 female, aged 20-60 years, with an average age of 40.3 years; the course of disease is 7 months to 3 years, with an average of 10 months, all cases are single, including 5 cases of sudden onset, 25 cases of slow motion, 30 cases of the first symptoms of lower extremity dyskinesia, and 10 cases with pain.

(2) Course of disease

MRI was performed in all cases, showing suspicious vascular lesions in the spinal canal, which was confirmed by digital subtraction angiography (DSA). Among them, MRI was performed in 12 cases (60.3%), the main manifestations were tortuous flow of blood vessels in the spinal cord air shadow, swelling or ischemia of the spinal cord in 5 cases (20.7%), intraspinal hemorrhage in 3 cases (11.5%), and DSA showed that the epidural artery and the superficial vein were directly connected through the fistula mouth, the fistula mouth 5 cases (10.4%) were located in the neck, 10 cases (30%) in the middle and upper chest, 12 cases (40.3%) in the lower chest, and 3 cases (15.8%) in the lumbosacral (t9-12). In 25 cases of single artery (type a fistula), 2 arteries (type B fistula) and 3 fistulas (type B fistula), the left vertebral artery branch in plane C as the main artery, the ascending branch of the left thyroid artery carotid artery also participated in the blood supply, the two blood supply arteries mainly came from the left lumbar artery, and the artery branch under the left rib also participated in the blood supply.

(3) Operation method

According to the relevant position of SDAVF fistula before operation, the spinal position of the pre-cut lamina was determined under X-ray fluoroscopy, and a small amount of blue markers were

injected at the same time. After general anesthesia, the two adjacent lamina around the fistula were moved from the side of the articular process to the medial edge, so that the dura sheath of the nerve root could be completely exposed. When the dura was cut longitudinally under the microscope, it was obvious during the operation microscopically, drainage veins from the fistula to the surface of spinal cord were found, and there were dural fistulas and small blood vessels burned near the dura of the dura mater. In the process of operation, you can clearly see the zigzag condition of spinal cord surface, as well as the expansion of bright red drainage vein to turn dark red and collapse, which shows that the successful closure of fistula, in addition to the routine treatment of infection prevention and CSF fistula, anticoagulation treatment is also very important, at the same time, proper hormone and neurotrophic treatment are also important Yes.

(4) Evaluation method

The patients' lower extremity movement and sphincter function before and after operation were scored by the improved arminov scoring method

Excellent: normal or basically normal, gait 0-1, micturition 0, defecation 0-1

Good: mild dysfunction, total score less than 6 points

Medium: moderate dysfunction, 6-8 points in total

Poor: severe dysfunction, 9-11 points in total

DSA is the first choice for imaging diagnosis and follow-up, MRI is the second choice for imaging follow-up.

4.2. Analysis of Experimental Results

(1) Evaluation of spinal cord function before operation

The evaluation of spinal cord function before operation is shown in Table 1.

Table 1. Preoperative evaluation of spinal cord function

Number of people	Grade	Aminov mean score	Percentage
6	Excellent	0.9	18%
10	Good	3.5	35%
10	Medium	7	35%
4	Poor	10.2	12%

It can be seen from Table 1 that in the 30 patients studied in this paper, among the related evaluation of spinal cord function of patients before operation, 6 patients have excellent evaluation grade, and the average score of aminov is 0.9, accounting for 18% of the total; the average score of aminov is 3.5, accounting for 35% of the total; the average score of aminov is 7, accounting for 35% of the total; the average score of aminov is 4, accounting for 35% of the total The average score of husband was 10.2, accounting for 12% of the total.

(2) Analysis of imaging performance

MR and angiography of the spinal cord were performed in all cases. The correlation of imaging findings is shown in Table 2.

Table 2. Correlation analysis of imaging performance

Patient	Imaging performance	Number of people	Remarks
30	High signal changes in the right spinal cord	25	Vascular empty shadow
		5	Venous infarction
30	Location of fistula	10	Neck
		10	Chest
		10	Waist

According to Table 2, 30 cases of mrt2 weighted spinal cord showed high signal changes,

including 25 cases of vascular tortuosity in the anterior and posterior walls of the spinal cord, 5 cases without obvious blood shadow but with thrombus vein, the spinal cord showed flaky low signal area, with vein infarction, myelography confirmed that the fistula was located in the neck in 10 cases, chest in 10 cases, and waist in 10 cases.

(3) Evaluation of spinal cord function after microsurgery

The 30 patients studied in this paper were followed up for 6 months to 3 years, with an average of 25 months. Among them, 20 patients obtained DSA and MRI related follow-up results at the same time, the remaining 10 patients only obtained MRI related follow-up results. The related evaluation and analysis of spinal cord function after microsurgery are shown in Figure 1.

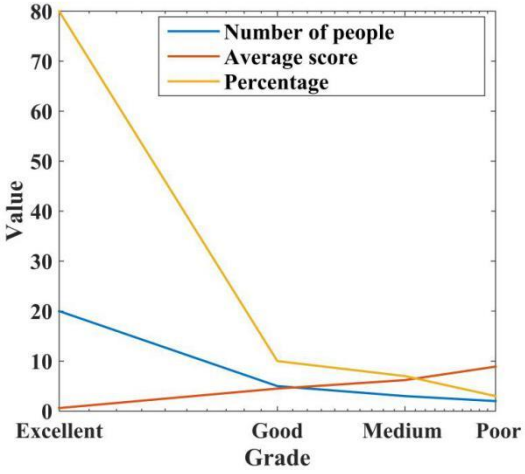

Figure 1. Evaluation of spinal cord function after microsurgery

It can be seen from Figure 1 that among the 30 patients studied in this paper, the evaluation grade of 20 patients is excellent, and the average score of aminov is 0.6, accounting for 80% of the total number of researchers; the average score of aminov is 4.5, accounting for 10% of the total number of researchers; the evaluation grade of 3 patients is medium, and the average score of aminov is 6.2, accounting for 10% of the total number of researchers the average score of aminov score was 8.9, accounting for 3% of the total study population.

(5) The related arc state of dura mater under microscope after microsurgery

Under the microscope, the relevant arc state of dura mater is shown in Figure 2.

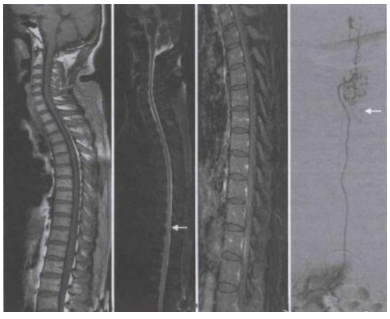

Figure 2. Microscopically related arcuate condition of dura mater

It can be seen from Figure 2 that abnormal vascular shadow with abnormal increase can be seen on the plane of vertebral body. The blood supply artery mainly comes from T6 right intercostal artery, the drainage vein is too early, thickened and tortuous, and it is drained down to T12 plane. The artery originates from T5 intercostal artery, and the right T5 intercostal artery and T6 intercostal artery are often seen. After the operation, MRI reexamination shows that there is no

tortuous drainage vein, symptoms and body of dural arteriovenous fistula because the spinal canal is too narrow, some intraspinal tumors are confused with the diseases related to spinal cord demyelination. In addition, X-ray and CT can't make the related diagnosis. Therefore, the diagnosis mainly depends on the imaging examination. MRI and DSA are the most commonly used examination methods to diagnose SDAVF, and DSA is the gold standard to diagnose SDAVF If the two are combined scientifically and effectively, the diagnostic accuracy of SDAVF can be significantly improved to a large extent.

(6) Improvement of motor function and evaluation of comprehensive curative effect

The improvement of motor function is shown in Figure 3, and the analysis of comprehensive efficacy evaluation is shown in Figure 4.

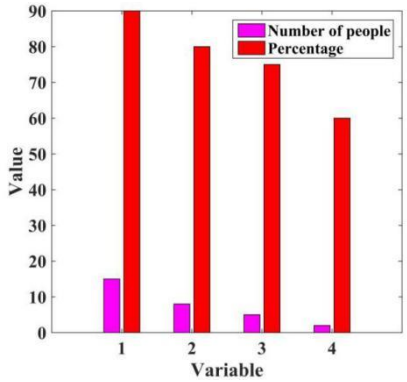

Figure 3. Improvement of motor function

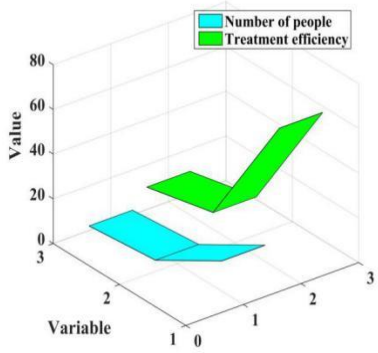

Figure 4. Analysis of comprehensive efficacy evaluation

It can be seen from Figure 3 and Figure 4 that in the study of 30 patients with preoperative dyskinesia, 15 patients can walk on their own after operation, 8 patients have limited exercise endurance, 5 patients still need crutches, and 2 patients still cannot get rid of wheelchairs. Although no one patient with severe dyskinesia can completely return to normal, most patients still have aminov scores the improvement of 1-2 points was achieved. Among the 10 patients with preoperative pain, 9 patients had significant pain relief or disappearance. Among the 15 patients with preoperative sensory dysfunction, 15 patients' symptoms were improved to a certain extent. 2 patients without postoperative symptom improvement and 1 patient with symptom aggravation. Comprehensive efficacy related evaluation: 23 cases were cured, accounting for 73% of the study population; 5 cases were improved, accounting for 17% of the study population; 2 cases were unchanged, accounting for 10% of the study population, and there was no case of deterioration.

5. Conclusion

Dura rupture is a common complication of posterior spinal surgery. During operation, the dural calcification or adhesion may result in rupture of the dura during surgery or the rupture of the dura due to incisions. The incidence rate will vary from surgical method. Currently, the treatment of spinal dura mater includes laminectomy, suture and spraying. Comprehensive treatment of tretinoin glue, gelatin sponge and indwelling drainage tube. In order to study the micro repair technology of dural rupture caused by movement, 30 patients with dural rupture were selected in this paper. After MRI showed that there was suspected vascular disease in the spinal canal, they were confirmed by digital subtraction angiography. Before the operation, based on the specific location of SDAVF fistula, the specific location of the vertebral lamina was determined by X-ray fluoroscopy, and a small amount of methylene blue was injected at the same time. Under the microscope, carefully observe the fistula drained to the vein on the surface of spinal cord to prevent postoperative infection.

This study shows that after microsurgery, there are 20 patients with excellent evaluation grade, the average score of aminov score is 0.6, accounting for 80% of the total number of patients, 5 patients with good evaluation grade, the average score of aminov score is 4.5, accounting for 10% of the total number of patients, 3 patients with medium evaluation grade, and the average score of aminov score is 6.2, accounting for the total number of people among them, 7% of the patients with poor evaluation grade had 2 patients, and the average score of aminov score was 8.9, accounting for 3% of the total. In the related evaluation of comprehensive efficacy, 23 cases were cured, accounting for 73% of the number of researchers; 5 cases were improved, accounting for 17% of the number of researchers; 2 cases were unchanged, accounting for 10% of the number of researchers, and there was no deterioration.

Dural rupture process is increasing, and its damage to the later nervous system is also very important. Therefore, we should carry out related surgical treatment as soon as possible. If not treated in time, it will lead to spinal cord dysfunction, ischemic necrosis, paraplegia and poor quality of life to a large extent. Using minimally invasive surgery to treat the fistula after unilateral hemilaminectomy can protect the integrity and weight of the spine to a large extent, make the patients easy to recover, recover the function of the spinal cord, and improve the quality of life. The biggest purpose of treatment is to avoid the aggravation of the disease and strive to get a certain degree of functional improvement. In addition, early diagnosis and early treatment is the only effective way to avoid severe paralysis and dysfunction of stool. Therefore, postoperative observation, anticoagulant care, rehabilitation training and psychological care are the necessary guarantee for the success of the operation.

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Data Availability

Data sharing is not applicable to this article as no new data were created or analysed in this study.

Conflict of Interest

The author states that this article has no conflict of interest.

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