

A study of 62 cases of sciatic nerve injury

Ali K. AL-Shalchy* MBChB, FICMS, FICNS, MRCSI

Summary:

Objectives: a study of surgical procedures used in the management of sciatic n injury & a comparison between them including comparison with other universal studies.

Patients and methods: 62 patients collected from the neuro-surgical unit in the specialized surgical hospital from Jan-2004 till October 2007, all patients studied thoroughly regarding age, Gender, type of injury, time of injury & outcome.

Results: 85% of our patients were ♂, 45% were in the age of 21-30 years, most injured by bullet or shells, the delay in surgery was mostly 1-3m, the repair is by direct suture 45%, 29% release of adhesions 16%, excision of neuroma & suturing, 9.6% by nerve graft, the direct suturing carried the best results, & grafting the worse type, comparison done with universal studies.

Conclusion: Direct suturing of neural sheath (Epineurium) carries the best results if done at proper time.

Keywords: Sciatic nerve, suturing, grafting.

Fac Med Baghdad
2009; Vol. 51, No. 1
Received July 2008
Accepted Oct. 2008

Introduction:

The sciatic nerve is the largest nerve in the body. It arises from L₃L₄L₅S₁S₂. It's formed in the buttock & then goes to the post compartment of the thigh. It divides above the popliteal fossa to the post tibial n. & common peroneal n. The sciatic n. is liable to injury by direct trauma by sharp objects & bullets & missiles (2). The patients symptoms depend on the area of the nerve involved but it's usually drop foot with or without numbness of the lateral leg, & dorsum of the foot(2,3) Diagnosis is usually by EMG & NCS(4) Management is usually surgical & many ways of surgery either by direct suturing of the sheath or Neuro fibrils under microscope or nerve graft if big gap is presents or excision of neuroma with end to end anastomosis or sometimes just release of adhesions depending on the type of injury (5, 6, 7)

Patients and method:

62 patients with sciatic n injury studied in our series from Jan 2004 to October 2007, all treated surgically & followed at least for 6 months those who can not be followed were excluded from this study, the study included age, Gender, types of injury, diagnosis, time between injury & surgery, the type of surgery & the outcome related to the types of surgery.

Table (1): Symptoms & signs.

Symptom & sign	No.	%
Drop foot	62	100%
complete paralysis of the foot	21	33.8%
sensory changes	48	77.4%
Atrophy of the lower limb	8	12.9%
foot ulcers	8	12.9%
absent ankle Jerk	62	100
others	6	

N.B. The total number is more than 62 as many patients have more than 1 symptom or signs.

Table (2): The time between injury & surgery.

Time	No.	%
Less than 1m	6	9.6%
1-3m	28	45.2%
3-6m	20	32.2%
6-9m	6	9.6%
more than year	2	3.2%

Table (3): Type of surgery.

Type of surgery	No.	%
Suturing of the neural sheath	28	45%
Release of adhesions	18	29%
excision of neuroma with end to end anastomosis	10	16%
Nerve graft (sural n.)	6	9.6%

Table (4): outcome in relation to the type of surgery

Type Of surgery	Good	%	Fair	%	Poor	%
Suturing of the neural sheath	17	60.7%	7	25%	4	14.2%
Release of adhesions	5	27%	7	38.8%	6	33.3%
Excision of neuroma & end to end anastomosis	5	50%	1	10%	4	40%
Nerve graft (sural N.)	-	-	2	33.3%	4	66.6%

Results and discussion:

62 patients were studied whom all under went surgery for n. injury & followed at least for 6 months.

*Dep. Of Neurosurgical, Unit of specialized surgical hospital

The age groups 45% of the patients were in the age of 31-40 years which is expected as these are the active age groups more liable for injury & goes with most studies in the field (2, 3) The gender 85% were ♂ the most usual victim for injuries especially explosions & bullet injuries. All the patients were diagnosed by EMG & NCS. The injury in 58% of cases was bullet injury & 33% by shell injury & 4.8% by sharp objects. 2 cases were associated with closed fractures. These numbers does not fit with most studies in the field. As the circum stances of bombing & using weapons is high which is not like other studies done in piece time (5, 6). 4.8% had associated head injury (bombing) & 6.4% had chest injuries & 9.7% had abdominal injuries either from shells or bullets, and 29% had orthopaedic injuries which include the local orthopaedic injury. All these injuries make the condition of the patient more complicated & delay the time of surgical interference till the general condition of the patient permits which can affect the outcome of the surgery. For the local injury 25% had II femur & 19% vascular injury mainly the femoral artery both affected our interference & time of surgery. 12% had severe soft injury trauma with oedema, infection & necrosis which delayed the surgery & affected the outcome. The clinical presentation all the patients had drop foot with absent ankle reflex. 1/3 had complete paralysis of the foot, Atrophy of the limb, & foot ulcers was mainly less than 10% were operated upon –the 1st month & 45% is the 1st 3 months, & 32% - the 3-6 months. The delay was mainly to the patient delay by him self post ponding the surgery & to the associated injuries delaying the surgery time. The surgical procedure 45% we were able to suture the nerve sheath, 29% it was just release of adhesions, and 16% we did sural n. graft. We did not use the fascicular repair. The out come 60% of patients with nerve suturing had good prognosis. While only 27% of those with release of adhesions mainly due to the primary ischemia of the nerve & 50% of those with excision of neuroma & anastomosis & no one with n. graft had good prognosis.

These results & are so close to kline DG, et al at 2001(8) & levinthal R. et al at 2003 (9), with around 60% good prognosis. 14% with suturing & 33% of releasing adhesions, 40% of excision of neuroma & 66% of cases of n. graft had bad prognosis, regarding the total number this is still acceptalele compared with klines DG et al 2001(8) & Liventhal et al at 2003.(9).

Conclusion:

There are many procedures for repair of the sciatic nerve if done early the best results can be obtained by suturing of the nerve sheath.

References:

1. Mockinnon SE, Dellon AL-surgery of the peripheral nerve, newyork, Thieme Medical, 1988.
2. Hakstain RW, fascicular orientation by direct stimulation an aid to peripheral n. repair J Bone joint surg. (Am) 1999, 50-A, 25-36.
3. Giddins GEB, Wade PJF, Ams AA primary nerve repair strength of repair with different gauges of nylon sutures material J. hand surg. (Br.) 1989: 14. 301-302.
4. Young JZ, Medawar PB, Fibrin suture of peripheral n. Measurement of the rate of regeneration, Lancet 1999 6-58-60.
5. Zachary RB Holmes W primary suture of the nerves surg. Gynaecol obsted 1946 85. 632-651.
6. Sunderland S- funicular suture & funicular exclusion in the repair of severed nerves Br. J surg 2002 2. 160-167.
7. Terzis JK, faibisoff B, Williams HB the nerve gap: suture under tension VS. Graft plast Reconster surg. 200012:180-184.
8. Kline DG. Hudson AR. Surgical repair of acute peripheral n. injuries. Timing & technique. In morley TP(ed) current controversies in Neurosurgery. Philadelephia, saunders 2001 pp. 25-38.
9. Levinthal R. Brown WJ, Rand RW comparison of fascicular, interfascicular and epineural suture techniques in the repair of simple nerve lacerations J Neurosurg. 2003 39:28-34.