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Case Report

Traumatic Cervical Anterior Spondyloptosis: Literature Review and Case Report

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Abstract

Cervical spondyloptosis is the dislocation of the cervical spinal column with a complete slip of one vertebral body over another most often caused by motor vehicle accident and falls. Due to compression, total or partial transection of the spinal cord, neurological deficits are very common. Epidemiology of cervical spinal injury globally is estimated at 12 cases per 100,000 persons with a higher incidence in developing countries. We review the literature and report a case of traumatic C5–6 anterior cervical spondyloptosis that was successfully managed with anterior cervical spine fusion only, after preoperative closed reduction was achieved by traction. An 18-year-old female with complete cord syndrome below C5 with right vertebral artery total occlusion above the injury level. This study is aimed at understanding the benefits of closed traction reduction to do or not to do, management of vertebral artery injury in anterior cervical spondyloptosis.

***Keywords:** Cervical, spine, spondyloptosis, vertebral, artery, traction,reduction, trauma*

Introduction

Cervical anterior spondyloptosis is a dislocation of cervical spinal vertebrae anteriorly and lower towards the adjacent vertebral body with or without locked facet. Traumatic cervical anterior spondyloptosis (TCAS) is uncommon, patients usually present with complete or partial spinal cord transection leading to complete neurological deficit below the level of spondyloptosis, some literature has described patients who presented with no neurological deficit which they attributed to the fracture of the posterior elements preventing bony compression of the spinal cord by the posterior elements. Irrespective of the neurological state of the patient the mainstay of management is reduction and stabilization of the fracture dislocation. We reviewed literatures about cervical spondyloptosis, significance of vertebral artery occlusion in TCAS and a case of an 18 years old female with a cervical spinal injury. (ASIA- A)

Case Presentation

The patient presented to the hospital with upper extremities paraparesis, lower extremities paraplegia and complete anaesthesia below C5 dermatome (ASIA-A) after a motor vehicle accident, plain x-ray demonstrated cervical spine fracture on the C5-C6 level with anterior spondyloptosis.CT demonstrated C5-C6 TCAS with no posterior element fracture, MRI demonstrated no contraindication to closed reduction traction.

Preoperative Management

Closed reduction was achieved by traction with a Gardner-Wells tongs head clamp with weight up to 12 kg. gradually increased from the inital 7kg, with time intervals under the control of fluoroscopy, neuro and hemodynamic monitoring. Repositioning was achieved after 6 hrs. She was transferred to our clinic for open surgery.

Right vertebral artery occlusion at the level of injury was found on CT-angio, this finding affected our choice of going for a 360 degrees approach in one sitting, choosing anterior approach only as anatomical realignment had been achieved by closed traction reduction. preventing further damage to VA leading to a total compromise of the posterior circulation.

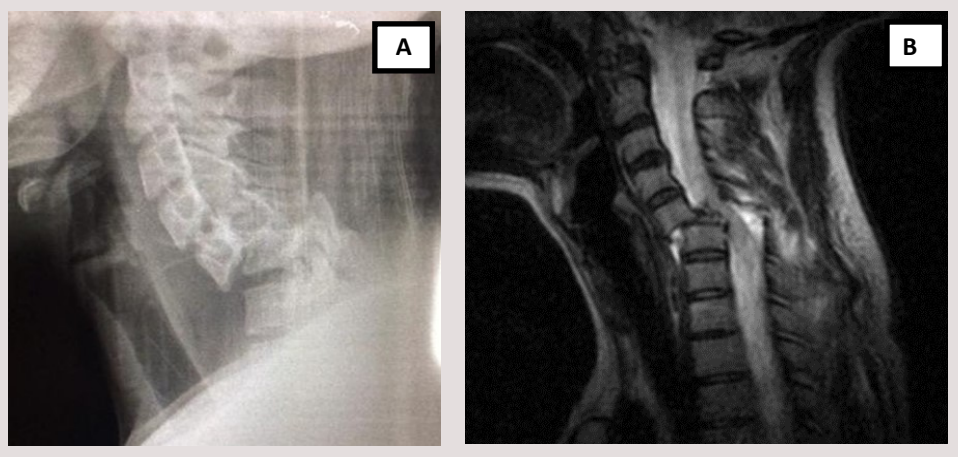

Fig 1: *Preoperative imaging of unstable C5-C6 dislocation: (A) X-ray (B) MRI showing snapped cord.*

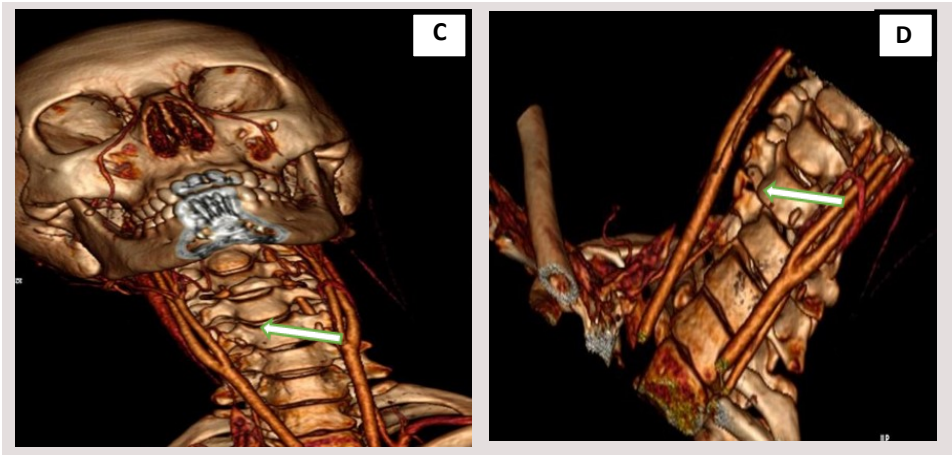

Fig 2: *A&B - CT-angio -VRT of the cervical spine showing the occlusion of the right vertebral artery (the white arrows shows the absence of the right vertebral artery after the level of the injury.*

Fig 3: *X-ray after closed reduction*

Operative Technique

The patient was fiberoptically (with the use of endoscopy) intubated and taken to the operating theater for an anterior stabilization. The patient's head was fixed with mayfield head clamp (Doro) throughout the surgery. Anterior cervical fixation technique was used, patient was on supine position with the head tilted to the right, free hand technique under C arm fluroscopy guidience, the stenocleidomastoid muscle, jugular vein and common carotid artery were retracted laterally to approach the C5-C6 disc space, sharp and then blunt dissection was used, intraoperatively, the reduction of the fractured dislocation was maintained in anatomical position.

C5-C6 discectomy was performed, posterior longitudinal ligament had been ruptured completely, torn dura of the spinal cord visualized. The end plates were prepared and a Mesh cage was fixed in the intervertebral space, a cervical plate was fixed anteriorly with 4 screws.

Postoperative Course

Postoperative imaging shows preservation of the preoperative reduction. After surgery patient had similar neurological status as to preoperative and was discharged to a rehabilitation facility full ambulatory with a philadelphia cervical collar. 3 months postoperatively the patient made a slight neurological improvement.

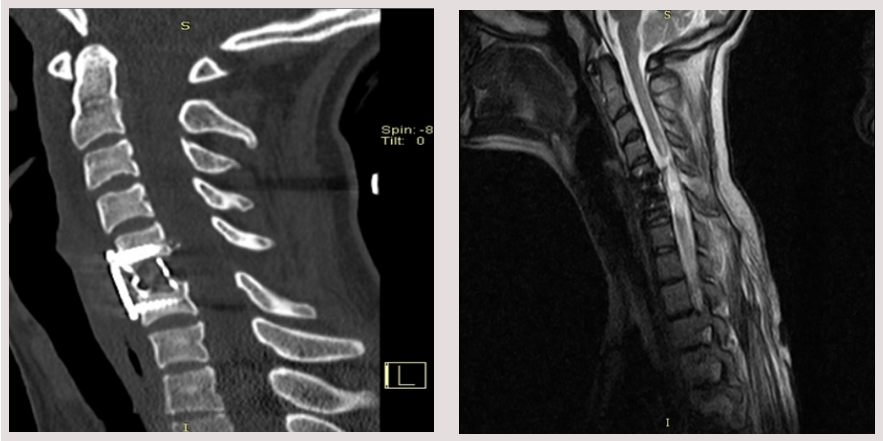

Fig 4: *Saggital CT view of the Cervical. Showing the instruments in place from next postoperative day. And 3 months postoperative MRI showing myelopathy at the level of trauma*

Discussion

Spondyloptosis is a total slippage of the vertebral body either posteriorly or anteriorly to the underlying vertebral body with or without locked facet, with or without posterior elements fractures. [1,2,3,4,5,6,8,9-29] Spondyloptosis of the spinal vertebae is more common on the lumbar region followed by the cervical region. global incidence of spinal injury is estimated at 64 cases per 100,000 persons, 12 cases per 100,000 persons is estimated to be cervical spine injury (all cervical spine injuies). From published literature we postulate spondyloptosis to be about 1 case per 500,000 persons. Male to female ratio in TCAS is estimated at 3:1.[33,34] From our literature review spondyloptosis occur more on the spinal transition zones. Authors have reported causes of spondyloptosis including: congenital vertebral anomalies, pathological process in the spine, birth trauma, and trauma [5,8,9,10,18,22]. The most common cause as seen through literatures is trauma, majorly high fall and motor vehicle accident 95%.

The main goal in management of spondyloptosis is to achieve anatomical alignment, decompress whatever spinal cord compression and avoid further instability. [5,9,26,27] Some authors consider closed traction reduction hazardous in patients with no neurological deficit or patients with very mild neurological deficit, they prefer open surgical reduction and corpectomy of the ptosed vertebral body.[5,27]

Diagnosing spondyloptosis on plain roentgenograms and CT maybe enough in most cases, but an MRI is recommended for a clear view of spinal cord kinking and traumatic disc herniation, especially when considering closed reduction before open surgery. An MRI has superiority in the display of changes in soft tissues, MRI will show anterior cord compression by herniated disc or haematoma, guiding the surgeon in decision making about close reduction. It's preferable to use all the 3 imaging modalities[9]. Due to the high risk of vertebral artery injury in cervical spondyloptosis above C6 vertebrae some authors advocate for doppler ultrasound, CTA or MRA or DSA pre and postoperative to rule out VAI. [30,31,32]

Cervical closed reduction traction to do or not to do: is achievable in some patients, while not in some patients, the choice of closed reduction is multi-factorial, considering timing and type of fracture, traumatic herniated disc or injured vertebral artery.[5,4] Closed reduction facilitate and minimize surgery time and exclude excessive corpectomy, though it carries risk in neurologically intact patients or in patients with injured vertebral artery. Cervical closed reduction traction must be done under intense neurological and hemodynamic monitor. fluroscopy control is essential. The clinician is left with the choice to do it or not with many factors in consideration, if the benefit outweighs the risk. [4,6,14] Many authors advocate for closed reduction when the posterior elements are fractured because it prevent bone compression of the cord and in most cases preclude contortion of vertebral artery, though the sharp fractured edge of the bone can cut the VA. Some studies reported that closed reduction followed by limited anterior-only fusion supplemented by rigid postoperative immobilization is more safe and effective than combined fusion. [3]

Vertebral artery injury: cervical spondyloptosis above C6 level is most times if not all the time associated with vertebral artery occlusion, dissection or contortion, and its usually misdiagnosed due to its asymptomatic form caused by collateral circulation.[30,31.32] Some authors advocate for CT angiography, MR angiography, doppler untrasound and even DSA of vertbral artery before closed reduction or even open surgery reduction especially in patients with comorbidities like diabetes, hypertension and predisposing factors to hypercoagulopathy [7,11,12,14, 30,31.32]. If there is vertebral artery injury management strategy would differ to prevent neurovascular incident like dislodgement of thrombus causing brain infarct, delay of surgery after reduction to dissolve any possible thrombi therapeutically. In most neurosurgical surgeries low molecular weight heparin is used postoperatively to avoid deep vein thrombosis, this management help in cases of thrombi originating from VA, hereby avoiding vertebrobasilar infarct. There is no evidence based management of symptomatic vertebrobasilar insufficiency, so we rely on generic use of anticoagulant therapy.[7,9,14,30,31,32]

Anterior vs Posterior cervical fusion surgery: The decision-making process in regard to anterior versus posterior management of a cervical dislocation is multifactorial. The ultimate goal of either procedure is to obtain anatomic alignment, cord decompression, prevention of further instability with a solid fusion. For patients with a large compressive disc herniation or significant burst fracture component, an anterior procedure is clearly the best choice, and in presence of multisegmental fractures or if biomechanical concerns over fracture stability prevail, a posterior procedure remains preferable.Anterior approach is preferred in children and young adults before 360 fixation if necessary, anterior management is preferred in elderly patients with comorbidities.[4,8,10,16,17,20] Circumferencial stabilization is contemplated for comprehensive fracture dislocations in patients with spinal cord injuries, this is controversial considering that there are few report on follow up on cervical spondyloptosis due to its rarity, many surgeons report it as over treatment, as patients treated with either anterior or posterior stabilization only has same if not better outcome due to the long duration of the circumferential stabilization.[11,17,20] Biomechanical studies support that anterior cervical instrumentation incorporating bicortical screw fixation is as strong as posterior wiring constructs. Moreover, the use of bicortical screws improves the biomechanics of anterior cervical constructs compared to unicortical screws with regards to flexion and extension.[11,15,17] Reported treatments of spondyloptosis have included anterior approach with or without instrumentation and posterior instrumentation. [4,8,15,16,17] Some clinicians choose either anterior, posterior or 360 fixation, with some factors in mind, the age of the patient, the neurological status of the patient preoperative and prognostic state postoperatively, it's important to avoid over treatment.[6,8,17] The decision-making process in regard to anterior or posterior management of a cervical dislocation is multifactorial, every clinician must consider carrying out management when its benefits outweighs the side effects. Putting into consideration the patients neurological state at presentation. If the patient is ASIA -A circumferential fusion in one sitting surgery may not be warranted. Anterior fusion is preferable when closed reduction was achieved before open surgery and enables discectomy.[11] Subseqently posterior fusion can be considered if total realignment was not achieved. Posterior fusion only is preferred in some cases. Circumferential fusion in a patient with ASIA-A would strike as overtreatment in many cases as a patient with such disabilities would have limited range of motions making a single surgical approach enough for stability.[4,8]

Complications. Most common complications in cervical spondyloptosis- low systolic blood pressure <90mm.Hg has been noted as a predictor of bad outcome neurologically due to the low perfusion of the spinal cord, optimum MAP should be >80mm.Hg.[6]

Hardware faliures have been recorded by some clinicians which is prompting a more aggressive approach; 360 degree cervical fixation. Dura tear and CSF leak causing meningitis or pseudomeningiocele, usually managed with a lumbar drain postoperatively.

Vertebral artery injury especially in posterior reduction and stabilization managed with anticoagulant. [9,20,26,31,32]

No concession has been reached on the diagnosis and management algorithm for cervical spondyloptosis. Going by the common complications experienced postoperatively, deciding whether to carry out preoperative closed reduction, anterior only, posterior only or circumferential surgical approach on patients with cervical spondyloptosis; some authors advocate for intense diagnostic imaging using CT,CTA,MRA,Doppler ultrasound, DSA. From our review vertebral artery injury is a serious, but uncommon complication of most cervical spondyloptosis above C6 level, its mostly misdiagnosed because unilateral VAI is more common and usually compensated by collateral blood supply or the use of low molecular weight heparin as prophlaxis of deep vein thrombosis postoperatively.[7,14,30,31,32] The American Association of Neurological Surgeons and the Congress of Neurological Surgeons Joint Section evidence-based Guidelines on the Management of Acute Cervical Spine and Spinal Cord Injuries do not recommend the use of steroid for SCI.[17]

Results

The patient underwent cervical traction and anterior cervical discectomy with fusion at the C5–C6 levels with a mesh cage and bicortical screw; considering 360 techniqe at the moment was not essential since the patient has severe neurological deficit with limited movement, considering the cost of circumferential fusion. the patient was on philadelphia cervical corset for at last 3 months. Though there is a VA occlusion, her posterior circulation is well compensated. From the review of literature we saw the algorithm of managements implored by different clinicians but still no evidenced based consensus on management.

Table. 1. Summary of Publications on Cervical Spondyloptosis and management till date

Author/ year	Age / sex	Level/ cause	neu-rology	DX im-aging	Traction	surgery	Pos-terio.ele ments	Verte-bral artery	Follow-up outcome
Tumialan et al[2009]	48/ M	C7-T1 trauma	ASIA-E	CT/MRI	Complete reduction	ACF+PF	fractured	N/A	1 year good outcome, no complications
Tumialan et al[2012]	43/ M	C4-C5 trauma	ASIA-B	CT/ CTA/ MRI	Complete reduction	ACF	intact	dissect-ed	Died from thromb from dissected VA
Chadha et al[2010]	35/ F	C6-C7 trauma	ASIA-A	Xray/ CT/MRI	Partial reduction	ACF+PF	fractured	N/A	Died due to complications
Jaypra-kash et al[2016]	35/ M	C6-C7 trauma	ASIA-A	Xray/ CT/MRI	Failed reduction	ACF	fractured	N/A	Good out-come
	8/M	C7-T1 trauma	ASIA-A	Xray/ CT/MRI	Not done	Not op-erated	intact	N/A	Detriorated status
	70/ M	C7-T1 trauma	ASIA-A	CT/MRI	Complete reduction	Not op-erated comor-bidity	N/A	N/A	Died due to multi system failure
Lee et al[2001]	65/ M	C7-T1 trauma	ASIA-D	Xray/ CT/MRI	Not done	ACF+PF	fractured	N/A	Dura tear, lumbar drain. Improved condition
	72/ M	C7-T1 trauma	ASIA-E	Xray/ CT/MRI	Not done	con-servativ e	fractured	N/A	Stable at 3 months
Ozdogan et al[1999]	67/ M	C3-C4 trauma	ASIA-E	Xray/ CT/MRI	Stopped due to defici**t**	ACF+PF	fractured	**N/A**	Same as pre-operation
Menku et al[2004]	35/ M	C6-C7 trauma	ASIA-E	Xray/ CT/MRI	Not done	ACF+PF	fractured	N/A	8 months follow up= stable
Ahn et al[2015]	32/ M	C7-T1 trauma	ASIA-E	Xray/ CT/MRI	Partial reduction	ACF+PF	fractured	N/A	Good out-come
	42/ M	C7-T1 trauma	ASIA-E	CT/MRI	Complete reduction	ACF+PF	fractured	N/A	Good out-come
Gasco et al[2013]	45/ M	C4-C5 trauma	ASIA-E	Xray/ CT/MRI	Failed reduction	ACF+PF	Locked-facet	N/A	Improved outcome
Akay et al[2002]	5/M	C3-C4 congenital	ASIA-D	Xray/ CT/MRI	Not done	ACF+PF	Intact	N/A	Good out-come
Dahdaleh et al[2013]	61/ M	C7-T1 trauma	ASIA-B	CT/ MRI/ CTA	Partial reduction	PF	Intact	No VAI	Died of com-plications
	48/ F	C6-C7 trauma	ASIA-D	CT/ MRI/ MRA	Not done	ACF	fracture	No VAI	Improved outcome ASIA-E
	51/ M	C7-T1 trauma	ASIA-E	CT/MRI	Partial reduction	PF	fractured	N/A	Good out-come
	48/ M	C6-C7 trauma	ASIA-D	CT/MRI	Complete reduction	PF	fractured	N/A	Good out-come
	42/ M	C7-T1 trauma	ASIA-D	CT/MRI	Complete reduction	PF	fractured	N/A	Good out-come
Dhal et al[2014]	28/ F	C6-C7 trauma	ASIA-B	CT/CTA	Failed reduction	PF	fractured	No VAI	Improved outcome
Fattahi et al[2019]	18/ F	C5-C6 trauma	ASIA-E	CT/MRI	Complete reduction	ACF	fractured	N/A	Died due to infections
Garneti et al[2003]	11/ F	C6-C7 aneurys-mal bone cyst	ASIA-D	Xray/ CT/MRI	Partial reduction	ACF+PF	intact	50% reduc-tion by I.I	Improved outcome

Kaskin et al[2013]	51/ F	C6-C7 trauma	ASIA-E	Xray/ CT/MRI	Complete reduction	ACF+PF[7] days	fractured	N/A	Improved outcome
Choi et al[2014]	51/ M	C6-C7 trauma	ASIA-A	Xray/ CT/MRI	Failed re-duction	PF+ACF	fractured	N/A	Improved outcome
Woo-kim et al[2018]	60/ M	C7-T1 trauma	ASIA-A	CT/MRI	Not done	PF	fractured	N/A	Improved outcome
	39/ M	C7-T1 re-operation	ASIA-D	CT/MRI	Not done	PF	fractured	N/A	Improved outcome
laohacha-roensomb	8/M	C2-C3 NF type I	ASIA-C	CT/MRI	Complete reduction	ACF with	intact	N/A	Improved outcome
Mamindla et al[2013]	46/ F	C5-C6 trauma	ASIA-D	Xray/ CT/MRI	Partial reduction	ACF	Intact/ L-facet	N/A	Improved outcome
Munako-mi et	56/ F	C7-T1 trauma	ASIA-E	Xray/ CT/MRI	Failed re-duction	ACF+PF	Frac-tured/L-	N/A	Improved outcome
Nathan et al[2013]	11/ M	Multilevel-NF type I C2	ASIA-E	Xray/CT	Partial reduction	PF than ACF af-ter 2	N/A	N/A	Improved outcome
Acikbas et al[2010]	42/ M	C7-T1 trauma	ASIA-E	Xray/ CT/MRI	Complete reduction	ACF then PF after 3	fractured	N/A	Good outcome
Saleh et al[2017]	2 wee k/M	C4-C5 birth trau-ma	ASIA -D	Xray/ CT/MRI	Failed re-duction	ACF+PF	intact	Left VAI	Good outcome
Shah et al[2004]	40/ M	C7-T1 trauma	ASIA-D	Xray/ CT/MRI	Complete reduction	ACF	intact	N/A	Good outcome
Nguyem et al[2016]	60/ M	C7-T1 trauma	ASIA-E	CT/ CTA/	Failed re-duction	ACF+PF	fractured	No VAI	Good outcome
Srivastava et al[2010]	35/ M	C3-C4 trauma	ASIA-E	Xray/ CT/MRI	Complete reduction	ACF	fractured	N/A	Good outcome at 2 year he is
Tsujimoto et al[2020]	69/ M	C7-T1 trauma	ASIA-B	CT/ CTA/	Failed re-duction	PF	Dislocat-ed/L-facet	No VAI	Good outcome
	73/ M	C7-T1	ASIA-B	CT/ CTA/	Failed re-duction	PF	Dislocat-ed/L-facet	No VAI	Good outcome
Bhojraj et al[1992]	8/F	C6-C7 birth trau-ma	ASIA-C	Xray/ MRI	Not done	ACF-C5-C7 with-out in-strumen	intact	N/A	At 3 months minimum support
Amacher et al[1993]	7/M	C7-T1 trauma	ASIA-D	Xray/ MRI	Not done	ACF+PF	intact	N/A	At 6 month he is stable
Martinez et al[1998]	2/M	C7-T1 trauma	ASIA-D	Xray/ MRI	Not done	ACF	intact	N/A	At 5 years normal devel-
Goffin and Grob[1999]	41/ F	C5-C6 trauma	ASIA-D	Xray/ MRI	Failed re-duction	ACF+PF	intact	N/A	At 1 year, she is stable
Muzumda r and Goel[2004]	31/ M	C2-C3 idi-opathic	ASIA-B	Xray/ CT/MRI	Failed re-duction	Transor-al C2-C3+ ACF	absent	N/A	At 6 months improved out-come
Jaya-kumar et al[2008]	58/ M	C2-C3 trauma	ASIA-D	Xray/ CT/MRI	Failed re-duction	Transor-al+PF+o cciput	fracture	N/A	At 18 months resolution of symptoms
Kumar et al	36/ F	C3-C4 larsen syn-drome	ASIA-B	Xray/ CT/MRI	Not done	ACF-C2-C5+PF C1-C6	intact	N/A	Improved outcome ASIA -E

Ramieri et al[2014]	55/ F	C6-C7 trauma	ASIA-E		Partial reduction	PF-(C2-C5)+PF (C6-T1) + ACF	fractured	N/A	Stable at 3 years
	38/ M	C7-T1 trauma	ASIA-E	Xray/ CT/MRI	Complete reduction	ACF	fractured	N/A	improved
Wong et al[2017]	49/ F	C6-C7 trauma	ASIA- A	Xray/ CT/MRI	Complete reduction	ACF	fractured	Dissec-tion/ occlu-sion of left VA	Good outcome
Padwal et al [2015]	50/ F	C6-C7 trauma	ASIA-C	CT/MRI	Complete reduction	ACF	fractured	N/A	At 12 month improved out-
	40/ M	C7-T1 trauma	ASIA-C	CT/MRI	Partial reduction	ACF+PF	Frac-tured/L-facet	N/A	Improved outcome: ASIA-D
	40/ M	C7-T1 trauma	ASIA-D	CT/MRI	Partial reduction	ACF+PF	Frac-tured/L-	N/A	Good outcome
	45/ M	C6-C7 trauma	ASIA-E	CT/MRI	Complete reduction	ACF	Locked facet	N/A	Good outcome
	64/ M	C7-T1 trauma	ASIA-D	CT/MRI	Not done	ACF+PF	Frac-tured/L-facet	N/A	Improved outcome ASIA -E
	24/ M	C6-C7 trauma	ASIA-D	CT/MRI	Partial reduction	ACF+PF	Frac-tured/L-facet	N/A	Improved outcome ASIA -E
	45/ M	C6-C7 trauma	ASIA-C	CT/MRI	Complete reduction	ACF	Frac-tured/L-facet	N/A	Improved outcome ASIA -D
	55/ M	C6-C7 trauma	ASIA-E	CT/MRI	Not done	con-servativ	fractured	N/A	stable
Our case	18/ F	C5-C6 trauma	ASIA-A	Xray/ CT/ CTA/ MRI	Complete reduction	ACF	Locked facet	Occlu-sion f right verte-bral ar-	At 3 months stable, im-proved out-come ASIA-D

From the above table 1 showing all published cases of spondyloptosis till date with preoperative neurological status, imaging modalities and managemnet strategies. ACF: anterior cervical fusion. PF: postierior fixation. I.I: image intensifi-er.L-facet: locked facet. N/A: not applicable.

Table 2: Analysis of table 1.

Management approach in published cases of cervical spondyloptosis				
ACF+PF	ACF	PF	Conservatively	Comorbidity
26 (46.4%)	17(30.4%)	9 (16%)	2 (3.6%)	2 (3.6%)
Closed traction reduction of published cases on cervical spondyloptosis.				
Complete reduction	Partial reduction	Failed reduction	Not done	
18 (32.2%)	12 (21.4%)	12 (21.4%)	14 (25%)	

Demographics of published cases of cervical spondyloptosis			
Number of cases	male	female	
56 (100%)	41 (73.2%)	15 (26.8%)	
Preoperative neurological status by ASIA score of published cases		**level of injury of published cases of spondyloptosis**	
ASIA-A	8 (14.2%)	C1-C2	0 (0%)
ASIA-B	7 (12.5%)	C2-C3	4 (7.1%)
ASIA-C	5 (9%)	C3-C4	4 (7.1%)
ASIA-D	17 (30.3%)	C4-C5	3 (5.3%)
ASIA-E	19 (34%)	C5-C6	4 (7.1%)
		C6-C7	17 (30.4%)
		C7-T1	24 (43%)

Table 3: Abbreviation

ASIA	American Spine Injury Association
TCAS	Traumatic Cervical Anterior Spondyloptosis
MRI	Magnetic Resonance Imaging
CT	Computer Tomography
MRA	Magnetic Resonance Angiography
CTA	Computer Tomography Angiography
VAI	Vertebral Artery Injury
VA	Vertebral Artery
DSA	Digital Subtraction Angiography
CSF	Cerebrospinal fluid
SCI	Spinal Cord Injury
MAP	Mean Arterial Pressure

From our review on published cases on cervical spondyloptosis.spinal trauma is prevalent on transition zone, most cervical spondyloptosis occur on C7-T1 (24 cases, 43%). of the 56 cases reviewed there were 41 male reports to 15 female reports, age ranging from 2 weeks old to 72 years old. 26 patients underwent combined surgical approach ACF+PF, 17 had ACF only and 9 had PF only. ACF is preferred by most surgeons as the first and only surgical approach if realignment is achieved, but when not - combine ACF+PF is necessary for proper anatomic alignment. Traction is necessary in every case of cervical spondyloptosis when the conditions are favourable, as it reduce excess corpectomy and time of surgery. Many surgeons didn't take into account VA even when the level of injury is above V1 part of VA.

Conclusion

The main goal in management of spondyloptosis is to achieve anatomical alignment, decompress cord compression and avoid further instability irrespective of neurological status. Closed reduction traction is recommended under strict neuro and hemodynamic monitoring with fluoroscopy control in every case of cervical spondyloptosis because it reduces the surgery trauma and time of surgery. More efforts to utilize a single technique method paying attention to comorbidity, VA.

Conflict of Interest

Patient's consent was obtained of which we are grateful. Special appreciation of our chief Prof. Smolanka and the entire clincal team of the hospital. There is no conflict of interest to the best of our knowledge.

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