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Research Article

**INCIDENCE OF DYSPHAGIA AFTER ANTERIOR CERVICAL
SPINE INJURY****¹Dr. Zahra Mehmood, ²Dr. Abdullah Hafiz Irshad Ul Haq, ³Dr. Uzma Zafar**¹MBBS; Faisalabad Medical University Faisalabad, Pakistan., ²MBBS; Zhengzhou University, Henan, China., ³MBBS; Quaid-e-Azam Medical College Bahawalpur Pakistan.**Article Received:** July 2019**Accepted:** August 2019**Published:** October 2019**Abstract:**

Dysphagia is a prevalent problem after anterior cervical spine surgery (ACSS). The incidences of dysphagia had been controversial and variable. The goal of this research would be to figure out the incidence of very early dysphagia after ACSS by having a brand new scoring system, also to determine the chance facets from it. a study that is prospectively performed and patients who undergone ACSS in the medical center was the most notable research.

Dysphagia that is self-designed had been brought to most of the clients through the very first time towards the 5th time after ACSS. Peri-operative faculties of clients had been documented, and incidences and danger facets of dysphagia had been examined. A complete of 104 patients who underwent ACSS had been included and incidences of dysphagia through the very first towards the day that is fifth ACSS had been 87.5%, 79.81%, 62.14%, 50%, and 44.23%, correspondingly. There clearly was a correlation that is good this new dysphagia scoring system and Bazaz scoring system ($P < 0.001$).

Operative time and human anatomy mass index (BMI) had been the chance facets for dysphagia through the very first towards the day that is second. But, the dC2-C7 angle ended up being the risk that is main for dysphagia through the 3rd towards the 5th time after surgery. There have been comparatively high incidences of very early dysphagia after ACSS, that might be attributed to operative time, Body Mass Index together with the angle that is dC2-C7.

Keywords: *Dysphagia; Incidences; Anterior Cervical Spine Injury.***Corresponding author:****Dr. Zahra Mehmood,**

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INTRODUCTION:

ACCS or Anterior cervical spine surgery is normally used in many different types of spine ailments, such as for instance trauma as well as degenerative cervical disease. The anterior method is simple to decrease pain as well as recover the patients' function. Nevertheless, many different additional complications associated with ACSS were already revealed. Among the most frequent concerns is dysphagia. Even though dysphagia is known as a transient challenge for the patient experiencing ACSS, it will probably affect a patient's function improvement as well as diminishes the postoperative quality lifestyle [1].

After ACSS, dysphagia incidences have been documented from 1.7% to 71%, which usually varying and questionable. A primary reason for this is definitely the multitude of rating techniques utilized for dysphagia dimension. Even though many scales of measurement were already revealed for dysphagia evaluation, typically the most popular one is Bazaz dysphagia scoring system, which usually described dysphagia as four grades: no, mild, moderate and severe. Nevertheless, the description of Bazaz scale is basic and only concentrates within the ingesting difficulty of patients, and that will undervalue the incidence of dysphagia. Thus, according to this study, we developed the latest scoring system to assess the initial dysphagia of patients experiencing ACSS. The basic concept of the research is to figure out the incidences of early dysphagia while using the latest scoring system as well as recognize the risk aspects associated with dysphagia after ACSS [2] [3].

MATERIALS AND METHODS:

This research had been authorized by the ethics panel committee regarding the concerned authorities that are medical penned informed consents had been gotten from most of the individuals. a study that is

prospective done and clients who experienced ACSS between had been most notable research.

Inclusion Criteria:

The inclusion criteria about patients who were clinically determined to have one or two-level adjacent cervical spondylotic myelopathy underwent anterior cervical discectomy and fusion (ACDF) or anterior cervical corpectomy and fusion (ACCF).

Exclusion Criteria:

Those patients who have the annals of cervical back surgery; or having dysphagia before surgery; lost during follow-up duration and along with incomplete data that are medically excluded through the research have been excluded.

Most of the surgeries had been done by two surgeons that are senior our medical center. Satisfactory endotracheal intubation was conducted after general anesthesia. The surgery had been started by having an incision that is right-sided. Deep retractors were utilized to give you an exposure that is relatively capacious of the operative web site. Most of the clients had been ACDF that is undergoing or. a suction that is closed had been regularly done following the surgery. The drainage had been eliminated within 72 hours whenever drainage amount had been significantly less than 50 ml/24h.

A new scoring system was designed in order to evaluate the early dysphagia. As a result of all the clients undergoing ACSS complicated with dysphagia due to the discomfort positioned during the neck together with the feeling of international human anatomy whenever swallowing, we find the apparent symptoms of pharyngeal discomfort and international human anatomy feeling whilst the major facets regarding the scoring system that is new. Depending on defined in Table 1 below, dysphagia is divided into five grades into the scoring that is new: grade we, II, III, IV, and V.

Grade I dysphagia is described as the standard one and grade V means the absolute most severe.

Severity of dysphagia	Definition
Grade I	Normal
Grade II	Foreign body sensation with solids and liquids
Grade III	Foreign body sensation with liquids
Grade IV	Pain with liquids
Grade V	Pain when swallowing, that cannot eat liquids

According to below mentioned Table 2 early dysphagia developing during the first to the fifth day after ACSS was measured by both of self-designed dysphagia scoring system and the Bazaz scale. Dysphagia questionnaires were

sent to each patient to determine the severity of dysphagia. And the incidences of dysphagia on each day were calculated.

Severity of dysphagia	Definition
None	No episodes of difficulty swallowing
Mild	Only rare episodes of difficulty swallowing
Moderate	Occasional swallowing difficulty with solid foods
Severe	Swallowing difficulty with solids and liquids

In addition, most of the clients' medical faculties, incorporating age, sex, human anatomy mass index (BMI), operative time, loss of blood, implant usage, preoperative JOA ranking together with dC2-C7 angle had been gathered. The angle that is dC2-C7 thought as the worth that postoperative angle without the preoperative one. The chance facets pertaining to dysphagia that is early ACSS had been analyzed.

The analytical analysis had been done by SPSS 17.0 pc software (SPSS Inc., Chicago, Illinois). Spearman ranking correlation analysis had been utilized to look for the correlation in between self-designed rating system together with Bazaz scale. Chi-square test had been utilized to defect the distinctions in between

clients with and lacking dysphagia. A $P < 0.05$ had been regarded as being significant.

RESULTS:

As per mentioned below in Table 3, a total of 104 patients had been tangled up in this research, composed of 70 males and 34 females having an age that is typical of years (varied from 19 to 78 years). The demographics and medical faculties regarding the clients had been exhibited in below-mentioned Table 3. Among these clients, the absolute most symptom that is common surgery had been extremities tingling and tiredness (41 situations, 39.4%). And 55 (52.9%) clients diagnosed as cervical myelopathy that is spondylotic single-level lesion and 49 (47.1%) clients with two-level lesions.

Patient characteristics	n (%) (N = 104)
Gender	
Male	70 (67.3)
Female	34 (32.7)
Age (years)	51.8 ± 11.0
Body mass index	22.4 ± 3.1
Preoperative symptoms	
Neck pain	2 (1.9)
Extremities weakness	2 (1.9)
Neck and extremities pain	3 (2.9)
Extremities pain and weakness	3 (2.9)
Extremities pain and numbness	6 (5.8)
Neck pain and extremities numbness	7 (6.7)
Neck pain and extremities weakness	20 (19.2)
Extremities numbness	20 (19.2)
Extremities numbness and weakness	41 (39.4)
Lesion locations	
C2/3, C3/4	1 (1.0)
C3/4	8 (7.7)
C3/4, C4/5	11 (10.6)
C4/5	15 (14.4)
C4/5, C5/6	23 (22.1)
C5/6	25 (24.0)
C5/6, C6/7	13 (12.5)
C6/7	6 (5.8)
C6/7, C7/T1	1 (1.0)
C7/T1	1 (1.0)
Surgical time (min)	134.8 ± 35.3
Intraoperative blood loss (ml)	109.5 ± 88.2

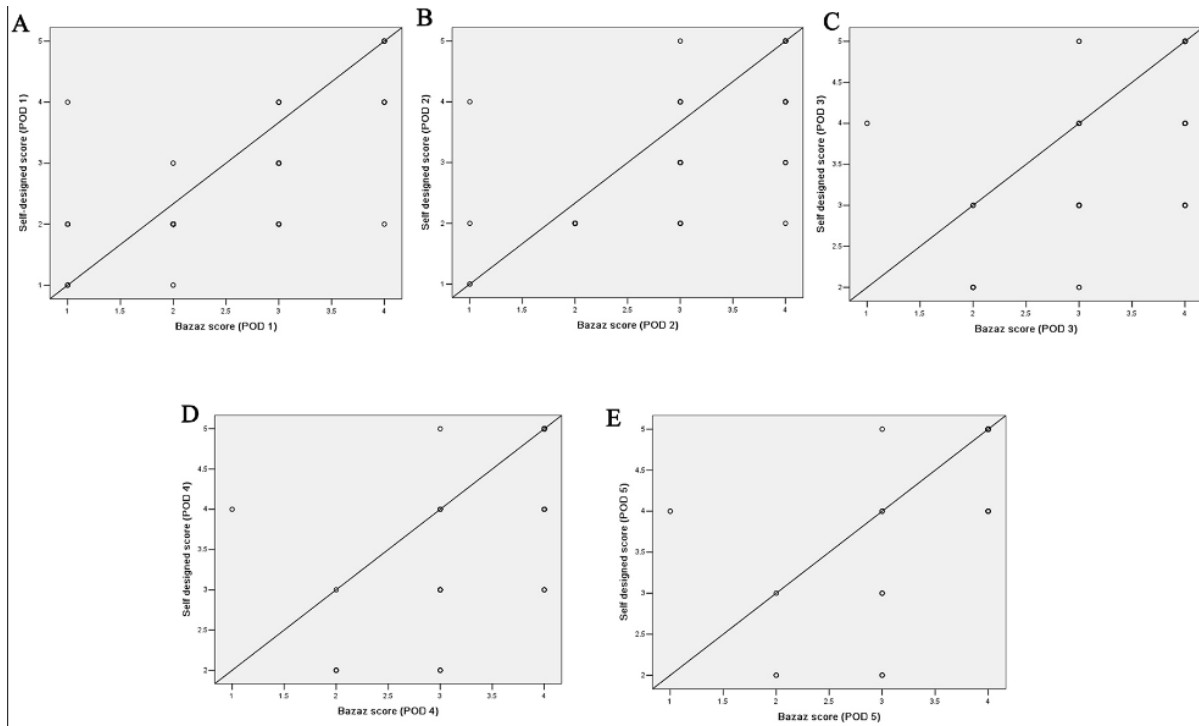
In line with the dysphagia that is a self-designed system, the incidences of dysphagia through the very first towards the 5th time after ACSS had been 87.5%, 79.81%, 62.14%, 50%, and 44.23%, correspondingly. As a result of both the factors regarding the two-scale of measurement had been ranking, Spearman ranking correlation analysis had

been utilized to evaluate the correlation of those. We characterized the four grades of Bazaz scale (none, moderate, severe and moderate) as grade 1, 2, 3 and 4, correspondingly. The outcome revealed that there clearly was a correlation that is good self-designed dysphagia scoring system and Bazaz scale, as previously mentioned in below Table 4 and Figure 1.

	POD* 1	POD* 2	POD* 3	POD* 4	POD* 5
Correlation coefficient	0.791	0.809	0.692	0.722	0.689
P value	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001

*POD: postoperative day.

Table 4



As per Figure 1, (A) the scatter graph of the two scoring system at postoperative day 1(POD 1); (B) the scatter graph of POD 2; (C) the scatter graph of POD 3; (D) the scatter graph of POD 4; (E) the scatter graph of POD 5.

On the basis of the analysis that is statistical clients whom got very beginning dysphagia after ACSS had comparable age, sex, loss of blood, implant usage and preoperative JOA score contrasting along with all those with no dysphagia through the very beginning towards the 5th time ($P > 0.05$) as previously mentioned in below dining Table 5. But, significant distinctions had been present in operative time and Body Mass Index between clients with and lacking

dysphagia through the very first towards the day that is second surgery. Moreover, there clearly was a difference that is the significant dC2-C7 angle between clients with and lacking dysphagia through the 3rd towards the 5th time postoperatively. It suggested that operative time, Body Mass Index and angle that is dC2-C7 end up being the danger facets for early dysphagia in patients experiencing ACSS.

Clinical factors	P value				
	POD* 1	POD* 2	POD* 3	POD* 4	POD* 5
Age	0.318	0.062	0.452	0.995	0.736
Gender	0.243	0.236	0.530	0.097	0.123
Body mass index	0.025	0.002	0.732	0.527	0.400
Operating time	0.009	0.017	0.957	0.863	0.327
Blood loss	0.095	0.468	0.433	0.846	0.340
Hardware use	0.144	0.125	0.321	0.156	0.213
Preoperative JOA score	0.125	0.566	0.631	0.507	0.677
dC2-C7 angle	0.661	0.397	0.007	0.001	0.002

*POD: postoperative day.

The chi-square test was used for analysis for the dC2-C7 angle, in order to make clear what degree was the risk factor of postoperative dysphagia. The outcome revealed as soon as the angle that is dC2-C7 higher than 9° , the incidence of postoperative dysphagia had been somewhat enhanced ($P < 0.05$) as previously mentioned in Table 6 below:

dC2-C7 angle	χ^2 and P values		
	POD* 3	POD* 4	POD* 5
5°	$\chi^2 = 0.616, P = 0.433$	$\chi^2 = 1.179, P = 0.278$	$\chi^2 = 0.015, P = 0.902$
7°	$\chi^2 = 0.169, P = 0.681$	$\chi^2 = 0.756, P = 0.385$	$\chi^2 = 1.277, P = 0.258$
8°	$\chi^2 = 1.896, P = 0.169$	$\chi^2 = 2.911, P = 0.088$	$\chi^2 = 3.539, P = 0.060$
9°	$\chi^2 = 3.995, P = 0.046$	$\chi^2 = 10.37, P = 0.001$	$\chi^2 = 6.841, P = 0.009$
10°	$\chi^2 = 3.343, P = 0.047$	$\chi^2 = 9.267, P = 0.002$	$\chi^2 = 5.660, P = 0.017$

*POD: postoperative day.

DISCUSSIONS:

Since Bazaz et al prospectively utilized the dysphagia scoring system to evaluate postoperative dysphagia in the year 2002, the scale of Bazaz dysphagia started to be the most used scale towards dysphagia assessment. It characterized dysphagia as none, moderate, moderate and serious, dependent on clients' signs with reliable and fluid meals [4]. But, this particular scoring system had been simplified and easy the incidence of dysphagia examined because of it might not trustworthy. Dysphagia impairment Index (DDI) is another scale that is popular had been utilized to gauge the dysphagia immediately after ACSS. It provides a questionnaire that is 25-item assess clients' views of practical, psychological and real dysphagia results. But, this scale is complex and expenses a time that is many clients to respond to the concerns [5] [6]. Newly, Swallowing- Quality of Life (SWAL-QOL) survey is created for dysphagia dimension. This survey is just a checked patient-based way of measuring dysphagia and needs clients to answer significantly more than 60 concerns at each and every visit that is postoperative that will be additionally maybe not convenient for clients to utilize. In addition, a number of the concerns in the SWAL-QOL scale are less relevant in a spinal study that is surgical. Consequently, a succinct and scoring that is explicit for dysphagia assessment is important [7] [4].

According to the present study, we designed a fresh scoring system for dysphasia evaluation. Dysphagia had been thought of as pharyngeal discomfort and international human anatomy feeling whenever swallowing solids or fluids in the fresh scoring system. Together with scale had been divided into five grades that have been convenient and easy for patients to realize. Moreover, its increased detail than Bazaz system that is scoring because we included pharyngeal discomfort assessment towards the system that will be considered trustworthy on pinpointing dysphagia after ACSS [8] [9]. The self-designed scoring system was compared with Bazaz scoring system in the present study. The outcome suggested most of the correlation coefficients had been higher than 0.65 ($P < 0.001$), which suggested

the 2 scoring system possessed a correlation [10] [3].

A few research reports have reported the chance facets connected with dysphagia after ACSS. Lee et al performed research with a couple of years follow-up and discovered that sex, modification surgeries, and surgeries that are multilevel the chance facets for long-lasting dysphagia after ACSS. Kalb et al recognized that multilevel treatments (particularly participation of C4-5 and C5-6) and age had been the chance facets of dysphagia. Olsson et al stated that the chance facets for long-lasting dysphagia had been revision and smoke surgery. Distinctive from past studies, we unearthed that operative time, Body Mass Index and dC2-C7 perspective had been the chance element for very initial dysphagia into the study that is present [11] [12].

Additionally, there are numerous limits in this research. To begin with, the test size with this research had been tiny, together with dysphagia had been just calculated regarding the very first today that is fifth surgery. The proofs for the precision and effectiveness regarding the scoring that is new on dysphagia evaluation are not sufficient. a control that is randomized by having bigger test dimensions and a long-lasting follow-up is important to further determine positive results. Next, the dysphagia had been revealed simply basing regarding the feeling that is subjective of, that might never be entirely dependable. Thirdly, the sensitiveness and specificity regarding the brand new scoring method are not analysed in the current study. Enhance research for the new scoring which is likely to be great for the understanding and application from it [13].

CONCLUSION:

In summary, we supposed a scoring that is new to gauge very initial dysphagia after ACSS. And it's also convenient and simple for clients to utilize. In line with the scoring that is new, the incidences of early dysphagia inpatients had been 87.5%, 79.81%, 62.14%, 50% and 44.23% regarding the very first five times immediately after the operation. The feasible danger facets pertaining to postoperative dysphagia had been operative time, Body Mass Index

together with an angle that is dC2-C7. Consequently, lowering the time that is operative decreasing the problems for the prevertebral soft muscle is effective to diminish the incidence of dysphagia after ACSS. In addition to that, the angle that is dC2-C7 be viewed whenever doing the surgery.

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