

RETROSPECTIVE AND PROSPECTIVE STUDY OF CORROSIVE POISONING AND ITS EFFECT ON UPPER GASTRO INTESTINAL TRACT AND SURGICAL MANAGEMENT IN TERTIARY CARE CENTRE Dr. R.S. Raikwar¹ (Prof.), Dr. R.K. Mathur² (Prof. & Head), Dr. Ranjeet Ahirwar³ (Resident)

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Article Info: Received 28 September 2019; Accepted 26 October 2019 DOI: https://doi.org/10.32553/ijmbs.v3i10.659 Corresponding author: Dr. Ranjeet Ahirwar Conflict of interest: No conflict of interest.

Abstract

Background: Corrosive injury to the upper gastrointestinal tract is an insufferable experience for both the patient and surgeon. Corrosive ingestion may usually responsible for wide spread injury to the lips, oral cavity, oropharynx and the upper air way, upper gastrointestinal tract.

Results: in our study more common patients were in the age group 21-30 years. Majority of the patients had consumed toilet cleaner. Majority of the patients had consumed substance of <= 30 ml. Majority of the patients had consumed HCL. Majority of the patients had consumed the substance with a suicidal Intention, [42.9%] consumed corrosive under influence of alcohol, In 5 (14.3%) patients had oropharynx involvement, in 8 (22.9%) patients had lower esophagus involvement, in 8 (22.9%) patients had middle esophagus involvement and 17 (48.6%) patients had upper esophagus involvement. In 18 (51.4%) patients had pylorus (stomach) involvement and in 5 (14.3%) patients duodenum (first part) involvement. In 11 (31.4%) patients esophagus was involved at 2A level, in 17 (48.6%) patients esophagus was involved at 2B level and in 2 (5.7%) patients esophagus was involved at 3A level. In 9 (26.5%) patients dilatation was not possible, in 2 (5.9%) patients it was not done. In 9 (26.5%) dilatation was done 2 times and in 14 (41.1%) patients dilatation was done 3 times .In 34 (97.1%) patients feeding jejunostomy insertion was done in 1 (2.9%), most common sequels esophageal stricture [65.7%] and GOO[40%], patient laparotomy Bilroth II gastrectomy was done as a primary intervention. Majority of the patients complained of dysphagia and chest pain and cough at first visit. In 11 (32.4%) patients gastrojejunostomy was done, in 7 (20.6%) patients esophagectomy with gastric pull-up was done, in 4 (11.8%) patient's thoracoscopic esophagectomy with colonic interposition was done. There were 3 (8.6%) deaths and 32 (91.4%) patients were discharged successfully in our study there was a significant improvement seen in the weight from follow-up at 2 months till the end of follow-up at 12 months (p<0.05).

Conclusion: In our study corrosive ingestion common in young age decrees, with increase age, (HCL) toilet cleaner found to be the commonest corrosive chemical used esophags most common than pylorus affected by the ingestion, oropharynx and duodenum less likely,2Bgrade of injury was affected the most in esophagus, stomach or duodenum, with a very high incidence of stricture formation. Dysphagia, throatpain, excessive salivation and hoarseness of voice were the commonest presenting symptoms. The first line of performed surgery at presentation was insertion of feeding jejunostomy and improvement in diet intake and strength of feeding jejunotomy patients underwent gastrojejunostomy, esophagectomy with gastric pull-up or thoracoscopic esophagectomy with colonic interposition. Dilatation was required in majority of the patients. There was a significant improvement in the weight of these patients over various follow-up periods. The overall success rate of management of these patients was found to be very high with only a very few deaths recorded in our study. **Keywords:** Corrosive injury, Esophagealstricture, Gastric outlet obstruction, Upper GI endoscopy.

Introduction:

Corrosive injury reported person have a injury associated to commit suicide, accidental, homicidal and many were intoxicated and influence of alcohol. Some of the case reported in which people who ingested corrosive substances have psychiatric illness include depression and personality disorders..Corrosive injuries are still increasing in developing countries [1,2], belong to the low social, economic, and educational variables and mainly to a lack of prevention[3,4]. Corrosive agent are in acid and alkalis form caused injury depend on its concentration and stat {solid and liquid, time of contact with the exposed mucosa of oropharynx to upper gastrointestinal tract [5]. There are management of injury depend on extent and part of which involved on the basis of endoscopy[6], most of patient initial manage by conservative medical management most of them not responsive, various modality to manage esophageal and stomach

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stricture, for nutritional build-up feeding jejunostomy performed to strength definitive surgry[7] most of the cases of esophageal stricture managed by endoscopic intervention but gastric complication required surgical intervention. They concluded that esophageal resection with replacement was safe and good technique for severe corrosive esophageal stricture with low mortality and morbidity [8,9]. Early upper G.I. endoscopy has a definite role in diagnosing the severity of the injury and in planning the management [10-14].

Now study was done to know effect of corrosive poisoning on upper gastrointestinal tract to evaluate efficiency of surgical procure in management and to know mortality and morbidity after corrosive poisoning and surgical management in tertiary care centre.

MATERIAL AND METHOD:

We was conducted retrospective and prospective study on 35 patients, the approval was taken from the ethical committee before initiating the study and informed consent was taken from the patients, we explained all surgical procedures and their possible consequences to the patients. We analysed demographic characteristic, injury grade, location, mode of consumption, performed surgery parameter before and after surgery, body weight and nutritional status, mortality.

Performed surgery:

- 1. Feeding Jejunostomy
- 2. Esophagectomy Gastric transposition
- 3. Esophagectomy Colonic transposition
- 4. Gastrojejunostomy
- 5. Billroth 1 Gastrectomy
- 6. Billroth 2 Gastrectomy
- 7. Roux en –y procedure
- MATERIAL AND METHOD:

a) Place of study:

Department of surgery, M.G.M Medical College and M.Y. Hospital, Indore.

b) Sample size:

Minimum 35cases.

c) Inclusion criteria:

All cases who had accidentally or intentionally taken corrosive poisoning are included in the study.

d) Exclusion criteria:

1) Cases of below 18 years of age group are excluded.

2) Patients not willing to give written consent.

Statistical Analysis

• Data will be analysed using SPSS software and appropriate statistical tests

Table 1: Distribution according to age

Age Group	Number	Percentage
18-20 years	9	25.7
21-30 years	17	48.6
31-40 years	7	20.0
>40 years	2	5.7
Total	35	100.0

The above table shows the distribution of patients according to age.



Graph1: Bar diagram showing distribution of patients according to age

Table 2: Distribution according to Chemical in Substance

Substance			
Chemical in Substance	Number	Percentage	
H ₂ SO ₄	5	14.3	
HCL	26	74.3	
NaOH	2	5.7	
Not known	2	5.7	
Total	35	100.0	

The above table shows the distribution of patients according to chemical in substance.



Graph 2: Bar diagram showing distribution of patients according to chemical consumed

Table 3: Mode of Consumption of ChemicalSubstance

Mode of Consumption	Number	Percentage
Accidental consumption	15	42.9
Suicidal	19	54.3
Homicidal	1	2.9
Psychiatric illness	7	20.0
Alcohol influence	15	42.9

The above table shows the distribution of patients according to mode of consumption.



Graph 3: Bar diagram showing distribution of patients according to mode of consumption

Table 4: Diagnosis

(N=35)

Diagnosis	Number	Percentage
Esophagus stricture	23	65.7
Gastric outlet obstruction	14	40.0
Duodenum stricture	5	14.3
Gastric perforation	1	2.9

The above table shows the distribution of patients according to diagnosis.



Graph 4: Bar diagram showing distribution of patients according to diagnosis

Table 5: Intervention done at first visit

Intervention visit	done at	first	Number	Percentage
Feeding Jejun	ostomy		34	97.1
Laparotomy	Bilroth	II	1	2.9
Gastrectomy				
Total			35	100.0

The above table shows the distribution of patients according to intervention done at first visit.



Graph 5: Pie diagram showing distribution of patients according to intervention done at first visit **Table 6:** Intervention done at second visit (N=34)

Intervention done at second visit	Number	Percentage
Bilroth I gastrectomy	2	5.9
Bilroth II gastrectomy	3	8.8
Esophagectomy with gastric pull-	7	20.6
up		
Gastrojejunostomy	11	32.4
Laparoscopic gastrojejunostomy	2	5.9
Not required	2	5.9
Thoracoscopic esophagectomy	3	8.8
with gastric pull up		
Thoracoscopic esophagectomy	4	11.8
with colonic interposition		
Total	34	100.0

The above table shows the distribution of patients according to intervention done at second visit.



Graph 6: Bar diagram showing distribution of patients according to level of esophagus involvement

Table 7: Grade of Injury (Oesophagus))
(N=35)	

(11 33)			
Oesophagus	Number	Percentage	
2A	11	31.4	
2B	17	48.6	
3A	2	5.7	

Table 8: Grade of Injury (Stomach)

(N=35)		
Stomach	Number	Percentage
2A	14	40.0
2B	15	42.9

Table 9: Organs Involvement

(N=35)

The above table shows the distribution of patients according to organs involvement.

Orgar	ns Involvement	Number	Percentage
Oroph	narynx	5	14.3
Esoph	lagus		
•	Lower	8	22.9
•	Middle	8	22.9
•	Upper	17	48.6
Pyloru	us (Stomach)	18	51.4
Duod	enum (First part)	5	14.3

RESULTS

Majority of the patients were in the age group 21-30 years. Majority of the patients had consumed toilet cleaner. Majority of the patients had consumed substance of <=30 ml. Majority of the patients had consumed HCL. Majority of the patients had consumed the substance with a suicidal Intention, [42.9%] consumed corrosive under influence of alcohol, In 5 (14.3%) patients had oropharynx involvement, in 8 (22.9%) patients had lower esophagus involvement, in 8 (22.9%) patients had middle esophagus involvement and 17 (48.6%) patients had upper esophagus involvement. In 18 (51.4%) patients had pylorus (stomach) involvement and in 5 (14.3%) patients duodenum (first part) involvement. In 34 (97.1%) patients feeding jejunostomy insertion was done in 1 (2.9%), most common sequels esophageal stricture [65.7%] and GOO[40%], patient laparotomy Bilroth II gastrectomy was done as a primary intervention.

Majority of the patients complained of dysphagia and chest pain and cough at first visit. In 11 (32.4%) patients gastrojejunostomy was done, in 7 (20.6%) patients esophagectomy with gastric pull-up was done, in 4 (11.8%) patients thoracoscopic esophagectomy with colonic interposition was done. There were 3 (8.6%) deaths and 32 (91.4%) patients were discharged successfully in our study. There was a significant improvement seen in the weight from follow-up at 2 months till the end of follow-up at 12 months (p<0.05).

Summary and conclusions

Corrosive chemical injury has been found to be used in cases of suicide and also accidental ingestions, female forming the vast majority of this group. Toilet cleaner (HCL) in our study was found to be the commonest corrosive chemical used. Oropharynx, esophagus, pylorus and duodenum were sites most commonly seen affected by the ingestion. 2B level was affected the most in esophagus, stomach or duodenum, with a very high incidence of stricture formation. Dysphagia, throat pain, excessive salivation and hoarseness of voice were the commonest presenting symptoms. The first line of treatment at presentation was insertion of feeding jejunostomy and improvement in diet intake and strength of feeding jejunotomy. At second visit, patients underwent gastrojejunostomy, esophagectomy with gastric pull-up or thoracoscopic esophagectomy with colonic interposition. Dilatation was required in majority of the patients. There was a significant improvement in the weight of these patients over various follow-up periods. The overall success rate of management of these patients was found to be very high with only a very few deaths recorded in our study.

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