

عسر البلع كميزة مقدمة لفقر  
الناتج

# **Dysphagia as presenting feature of Iron deficiency anemia**

By

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## **SUMMARY:**

Dysphagia is a rare manifestation of iron deficiency anemia, it may occur due to development of esophageal web. The association of cervical esophageal web and iron deficiency anaemia is known as the Paterson-Brown-Kelly (or Plummer- Vinson) syndrome (PVS).

The aim of this study is to report rare cases of PVS syndrome and to throw light on other causes of iron deficiency anemia and dysphagia.

15patients(pts) with Dysphagia and iron deficiency anemia were studied in the period of January 2000 to December 2001.Out of 15 pts with dysphagia and iron deficiency anemia, 10 (66.6%) pts were females and 5 (33.3%) pts were male. Their ages range from 19-60 years with an average of  $38.46 \pm 14.4SD$ , but most pts12 (80%) were in the age group of 19 to 49 years, only 3 (20%) pts were above 50 years.

An interesting finding was that esophageal webs were the commonest cause of dysphagia in those pts. These webs were seen in the upper third of esophagus .The histopatholgical exam showed benign nature. Out of 8 pts with esophageal web 7(87.5%) pts were females and 1(12,5%) pts was male.

All pts with esophageal web had an average age of  $31 \pm 10.25$  years. Marked weight loss was observed in 4 (26.7%) pts, all of whom had malignant lesion on histopatholgical examination. Carcinoma of esophagus was the second common cause, which occurred in 3 (20%) pts, while carcinoma of cardia of stomach was reported in 1 (6.6%) pts.

An interesting observation was that Achlasia cardia had been reported in a 55 years old female who underwent corrective surgery (heller procedure).

Conclusion: this study reported 8 rare cases of PVS, which might be not reported in our country. Pts with PVS carry high risk of postcricoid carcinoma, surveillance endoscopy is recommended. Carcinoma of esophagus was the second serious cause.

**الخلاصة:**

**Introduction:**

Dysphagia is a rare manifestation of iron deficiency anemia, it may occur due to development of esophageal web. <sup>(1)</sup> The association of cervical esophageal web and iron deficiency anaemia is known as the Paterson-Brown-Kelly (or Plummer- Vinson) syndrome (PVS). <sup>(2,3,4)</sup> Esophageal webs are thin membranes of connective tissue covered by normal squamous epithelium. Although they may occur anywhere along the oesophagus, they are usually situated in the upper third; <sup>(5)</sup> and frequently such patients may also have leukoplakia of the oropharynx and koilonychia. These webs regress with administration of iron therapy <sup>(3,6)</sup> and surgical management is rarely necessary. <sup>(2,6,7,8)</sup>

Although there are no aberrant epithelial changes in the web, PVS is associated with an increased incidence of post-cricoid carcinoma <sup>(2,7,8)</sup> and even gastric carcinoma had been reported as a rare complication. <sup>(9,10)</sup>

Anaemia and depletion of tissue iron-containing enzymes usually develop in parallel but either may be present without the other. Haem-containing cytochromes in epithelial cells as well as muscle, liver, and kidney are depleted; mitochondrial protein synthesis and integrity may also be dependent on iron. <sup>(1)</sup> The esophageal web of PVS may have been formed due to the restriction of dilatation of the esophageal wall, which result from repetitive inflammation and subsequent healing process. <sup>(5)</sup>

Achalasia is a disorder of oesophageal motility of unknown aetiology. Patients generally present with dysphagia for both liquids and solids.

The impaired motility is associated with a lack of peristalsis in the distal two thirds of the oesophagus, and incomplete or absent relaxation of the lower oesophageal sphincter in response to voluntary swallowing. These abnormalities lead to progressive dilatation of the oesophagus above the lower oesophageal sphincter. Achlasia is associated with increased incidence of esophageal carcinoma. <sup>(11)</sup> Occasionally malignant pseudoachalasia can be indistinguishable from primary achalasia on routine clinical evaluation <sup>(12)</sup>

The aim of this study is to report rare cases of Plummer Vinson syndrome (Paterson-Brown-Kelly) and to throw light on other causes of iron deficiency anemia and dysphagia.

### **Patients and Methods:**

15 pts with Dysphagia and iron deficiency anemia were studied prospectively during the period January 2000 to December 2001. All pts had been admitted to Al Jumhuri hospital in Basrah.

10 pts (66.6%) were female and 5 (33.3%) pts were male. Their age range was from 19-60 years with an average of  $43.2 \pm 14.7$ SD. Complete history was taken and full physical examination was done. Investigations were requested to include hemoglobin, pack cell volume & Hemoglobin electrophoresis. Bone marrow aspirate was stained with leishman and Prussian blue stain and examined by expert hematologist. Barium swallow examination, oesophagogastroduodenoscopy and biopsy were done for all pts. The biopsies submitted to histopathological examination by expert pathologist. Serum iron, iron binding capacity and serum ferritin were not done because of lack facilities. Iron deficiency anemia was diagnosed if hemoglobin was less than 12 gm/dl, hypochromic microcytic red cell on blood film exam, and depleted iron store on bone marrow examination.

## **Results:**

Out of 15 pts with dysphagia and iron deficiency anemia, 10 (66.6%) pts were female 5 (33.3) pts were males. Their age range was from 19-60 years with an average of  $38.46 \pm 14.4$ SD but most pts 12(80%) were in the age group of 19-49 years, and only 3(20%) pts were above 50 years. (See Table I) The duration of dysphagia ranged from 2-24 month. Kolionychias were observed in 6(40%) pts, mild splenomegaly was palpated in 2(13.3%) pts. (See Table I) An interesting finding was that esophageal webs (Figure 1,2) were the commonest cause of dysphagia in those pts were studied. These webs were seen in the upper third of esophagus .The histopathological exam showed benign nature. Out of 8 pts with esophageal web 7(87.5%) pts were female and 1(12.5%) pt was male. All pts with esophageal web were seen in the age group of 19-49 years with an average of  $31 \pm 10.25$ SD. (See Table I)

Marked weight loss was observed in 4 (26.7%) pts, all of whom had malignant lesion on histopathological examination. Carcinoma of esophagus (Figure 3,4) was the second commonest cause occurred in 4 (26.6%) pts, while carcinoma of cardia of stomach was reported in 1 (6.6%) pt. (See table II)

An interesting observation was that Achlasia cardia (See Figure 5,6) had been reported in 55 years old female who was underwent corrective surgery (heller procedure). (See table II)

Table III shows that gastrointestinal causes were the commonest causes of iron deficiency anemia occurred in 6 (40%) pts this followed by nutritional causes that occurred in 4 (26.7%) pts.

## **Discussion**

This study reported rare cases of PVS in 8(53.3%) pts within the short period of the study, which suggests that oesophageal web formation wasn't very rare, and it may be under-reported in our country. This is consistent with the conclusion of Shand-A who administered that oesophageal web formation may be under-reported. <sup>(19)</sup>

Tobin Rw administered that web is one of the commonest anatomical abnormalities of esophagus <sup>(20)</sup>

The eight pts in this study with PVS were in the age range of 19-49years and with an average age  $31 \pm 10.25SD$ . This is consistent with other studies that PVS occurred under age of 50 years. <sup>(1,2,4,15)</sup> Anthony -R report case of PVS in 6years old child. Mansel administered that only seven cases of PVS had been reported in world literature between the age of 14-19 years <sup>(4)</sup> and Kitahara-S reported case of 56 years old women with PVS that necessitate surgery for her esophageal web <sup>(8)</sup>.

Bohutove reported two cases of PVS at the age of 58and 81 years <sup>(7)</sup>, Geerlings reported PVS at 73 years.

Koilonychia's were observed in 6(40%) pts and splenomegally was detected in 3(13.3%) pts. this consistent with other studies. <sup>(1)</sup>

An interesting observation was that rare form of carcinoma of cardia of stomach presented with dysphagia and iron deficiency anemia. This is reported in one pt in this study.

Achalasia cardia is an other rare case reported in 55years old female pt in this study and this pt under went heller surgery. Achalasia is associated with high incidence of carcinoma <sup>(11,18)</sup> and endoscopic surveillance is recommended. <sup>(11)</sup>

Despite pts with plummer Vinson syndrome had had negative histopathological exam of their endoscopical biopsies, but they are at risk of developing post cricoid carcinoma, <sup>(2,7,8,16)</sup> and even carcinoma of stomach was reported following PVS. <sup>(9,10)</sup> This suggest a need for long-term follow up for these pts, and surveillance endoscopy is recommended. <sup>(2,17)</sup>

One pt with iron deficiency and dysphagia had normal esophagogram, and normal endoscopic finding, so we couldn't find any anatomical explanation of his dysphagia.

This may be explained by the fact that iron deficiency may decrease the power of swallowing of the esophageal wall, and it can cause functional dysphagia. <sup>(21)</sup>

This study demonstrates that gastrointestinal causes are the commonest cause of iron deficiency anemia, which is consistent with other studies. <sup>(22-23)</sup>

Dicky -W reported two cases of celiac disease presented with PVS <sup>(23)</sup>

## **Conclusion:**

This study reported 8 rare cases of PVS, which might not be reported in our country. Pts with PVS carry high risk of postcricoid carcinoma, surveillance

endoscopy is recommended. Ca esophagus was the second serious cause of dysphagia and iron deficiency anemia in this study.

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Tables I shows the characteristics of pts were studied

| CASE NO. | AGE | SEX    | HB GMDL | DURATION OF DYSPHAGIA | CAUSE OF DYSPHAGIA        | PHYSICAL FINDING                |
|----------|-----|--------|---------|-----------------------|---------------------------|---------------------------------|
| 1        | 40  | Female | 6       | 6 month               | Esophageal web            | Kolinychia, angular stomatitis  |
| 2        | 23  | Female | 7       | 12 month              | Esophageal web            | Mild splenomegaly               |
| 3        | 19  | Female | 9       | 2month                | Esophageal web            | Kolinychia , mild splenomegally |
| 4        | 49  | Female | 6.7     | 4 month               | Esophageal web            | Kolinychia                      |
|          |     | Female | 9.1     | 12month               | Esophageal web            | Kolinychia                      |
| 6        | 22  | Female | 8       | 4 month               | Esophageal web            | Kolinychia                      |
| 7        | 30  | Female | 8.5     | 2 years               | Unexplained               | Normal                          |
| 8        | 45  | Female | 7       | 3 month               | Ca esophagus lower third  | Normal                          |
| 9        | 55  | male   | 5       | 6 month               | Ca esophagus mid third    | No positive finding             |
| 10       | 21  | Female | 9       | 3month                | Esophageal web            | Kolinychia , wt lost            |
| 11       | 58  | male   | 7.8     | 1month                | Ca esophagus middle third | Wt lost ,                       |
| 12       | 60  | male   | 9       | 3month                | Ca cardia stomach         | Clubbing finger ,wt lost        |
| 13       | 35  | male   | 8       | 8month                | Esophageal web            | No other positive finding       |
| 14       | 30  | male   | 8       | 6month                | Ca esophagus upper third  | Wt lost, clubbing of finger     |
| 15       | 55  | Female | 10      | 2 years               | Achlasia cardia           | Kolinychia , normal wt          |

Table II shows the different causes of dysphagia in the pts were studied

| CAUSE OF DYSPHAGIA      | NO. OF PTS | %    |
|-------------------------|------------|------|
| Paterson Kelly syndrome | 8          | 53.3 |
| Ca esophagus            | 4          | 26.6 |
| Achlasia                | 1          | 6.7  |
| Ca cardia of stomach    | 1          | 6.7  |
| Unexplained             | 1          | 6.7  |
| Total                   | 15         | 100  |

Table III shows the underling causes of iron deficiency anemias in pts with PVS syndrome

| causes of iron deficiency anemia | no of pts | %    |
|----------------------------------|-----------|------|
| Gastrointestinal blood lost      | 6         | 40   |
| Nutritional                      | 4         | 26.7 |
| Menstrual lost                   | 3         | 20   |
| Multiparous women                | 2         | 13.3 |
| total                            | 15        | 100  |

Figure 2 shows esophageal web

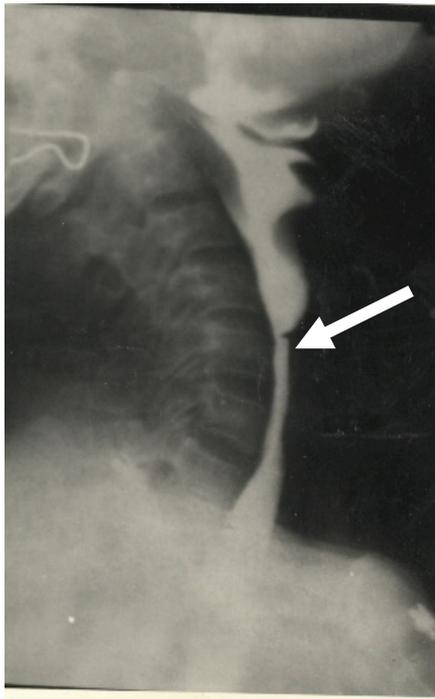
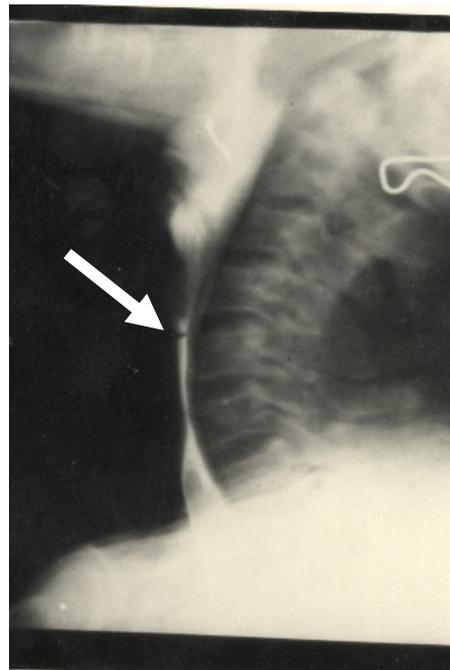
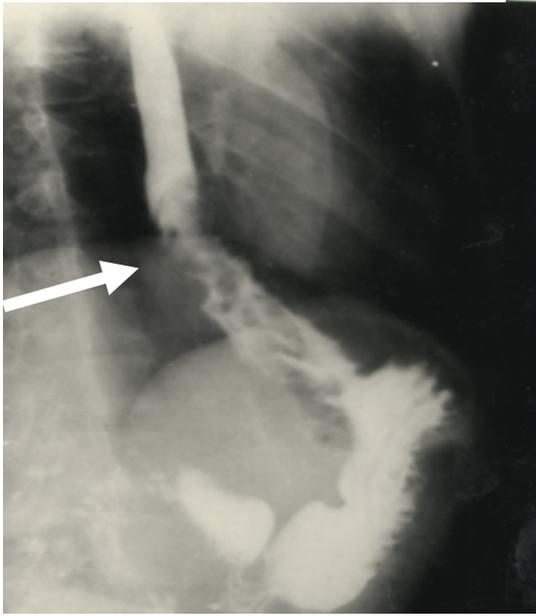


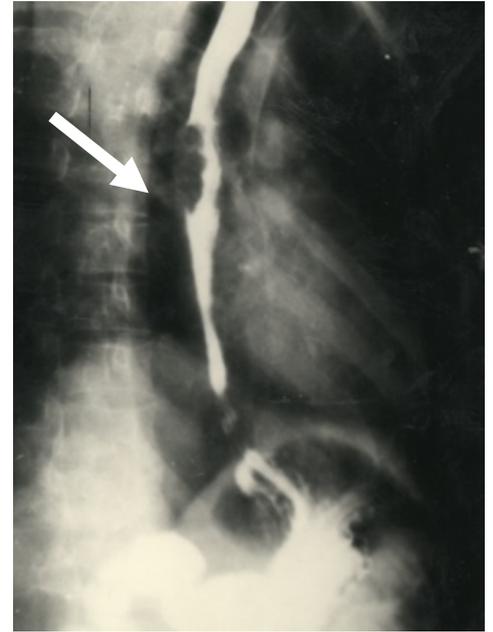
Figure 1 shows Barium swallow with cervical esophageal web



**Figure III shows Ca of the lower third of the esophagus**



**Figure IV shows Ca of middle third of the esophagus**



**Figure V shows Achlasia cardia**



**Figure VI shows Achlasia cardia**

