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Duodenal biopsy findings in patients with renal amyloidosis

Renal amiloidozlu hastalarda duodenal biopsi bulguları

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ÖZET: *Son yıllarda çeşitli organlardan yapılan biopsiler ile amiloid depolanması araştırılmaktadır. Bu çalışmada renal amiloidozlu 14 hastada duodenal biopsi bulgularını inceledik.*

Ocak ve Temmuz 1995 tarihleri arasında 6'sı erkek 8'i kadın toplam 14 hastaya böbrek biopsisi ile amiloidoz tanısı kondu. Aynı zamanda bu hastaların tümüne duodenal endoskopik biopsi yapıldı.

Renal tutulumlu hastaların tümünde duodenumda amiloid birikimi saptandı.

Bu sonuçlar duodenal endoskopik biopsinin sistemik amiloidoz tanısında yaygın olarak kullanılabileceğini düşündürmektedir.

Anahtar Kelimeler: **Amiloidoz, renal biopsi, duodenum**

SUMMARY: *In recent years, amyloid deposition has been diagnosed in biopsy materials of various organs. In this study, we studied duodenal biopsy findings in 14 patients with renal amyloidosis.*

Between january and july 1995 14 patients (6 men, 8 women) were diagnosed as amyloidosis on renal biopsy. At the same time, duodenal endoscopic biopsy was performed in all patients.

Duodenal amyloid deposition was established in all patients with renal involvement.

These results suggest that duodenal endoscopic biopsy may greatly contribute to the diagnosis of systemic amyloidosis.

Key Words: **Amyloidosis, renal biopsy, duodenum**

AMYLOIDOSIS is a relatively rare disease caused by the deposition of insoluble protein fibrils in organs and tissues of the body. In recent years, amyloid deposition has been dagnosed in biopsy materials of various organs (1). Renal involvement is very common in systemic amyloidosis (2). Rectal biopsy has been widely used as a diagnostic procedure because amyloid deposition frequently occurs in the digestive tract. However, there are few reports describing the value of endoscopy and biopsy of the upper digestive tract for diagnosing this disease (1). In this study, we studied duodenal endoscopic biopsy findings in patients with renal amyloidosis and compared the findings.

MATERIALS AND METHODS

Between January and June 1995, 14 consecutive patients were diagnosed as suffering from amyloidosis by renal biopsy.

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After diagnosis of amyloidosis by renal biopsy, endoscopy of the esophagus, stomach and duodenum was performed on all 14 patients using a GIF 20 QX endoscope (Olympus). Xylocaine was used for local anesthesia. The biopsies were taken from the second part of the duodenum.

The formaline fixed and parafine embedded biopsy specimens from the kidney and duodenum were stained with haemotoxylen eosin and crystal violet and evaluated under hight microscope.

RESULTS

The average age of patients was 35.9 years (range, 18 to 65 years). The male to female ratio was 6:8.

Five patients had primary amyloidosis and 7 had secondary amyloidosis (familial mediterranean fever in 4, juvenile rheumatoid arthritis in 1, ankylosing spondylitis in 1 and chronic bronchitis in 1).

Duodenal endoscopic biopsy results indicate that amyloid deposition was present in all patients. Results are summarized in table 1. Duodenal

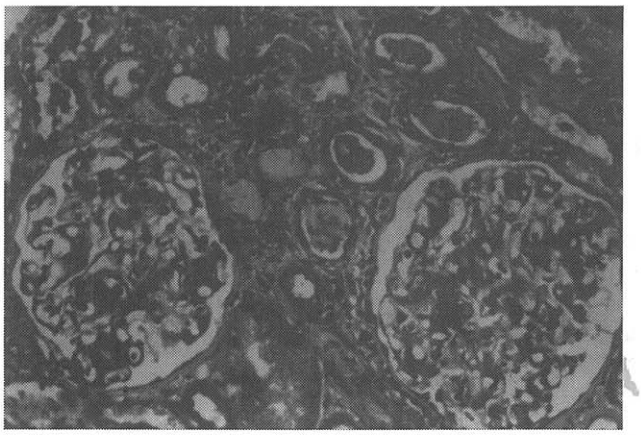

Figure 1. *Glomeruler amyloid deposition is seen in the capillary walls (Crystal violet, original magnification x 400).*

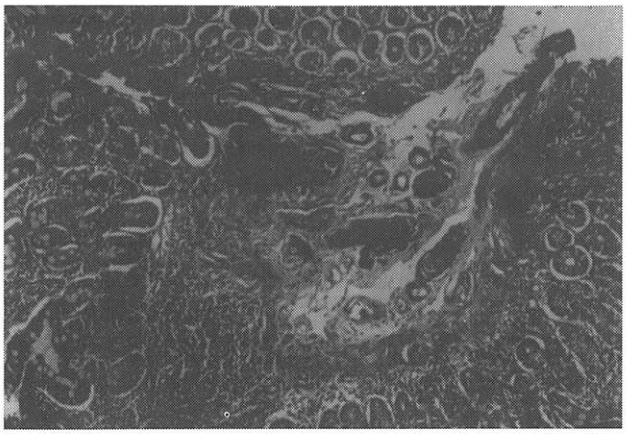

Figure 2. *Duodenal amyloid deposition is seen in the vascular walls of the submucosa (Crystal violet, original magnification x 40).*

amyloid deposition was primarily seen in the vascular walls of the submucosa (Figure 1 and 2).

DISCUSSION

Systemic amyloidosis is a disease which involves many organs including the kidney and gastrointestinal system (1-4). There is no reliable biochemical test for the diagnosis of amyloidosis. Definitive diagnosis was made by a tissue biopsy (1,5). Biopsy specimens have been taken from many organs such as the kidney, liver, lymph node, muscle, tendon and rectum (1,6-8).

Systemic amyloidosis, even in early stages, often involves the gastrointestinal tract (1,4). In 1994, Kobayashi studied a mice model casein-induced experimental amyloidosis, the incidence of amyloidosis in various organs was examined in relation to time, and the extent of amyloid deposition in the digestive tract was investigated. Amyloid was deposited first in the spleen followed by the digestive tract, the liver and the kidney. The results suggested that gastrointestinal biopsy to diagnose human reactive amyloidosis may be a sensitive early indicator of amyloidosis (9). Rectal biopsy has been widely used as a diagnostic tool because amyloid deposition frequently occurs in the digestive tract. Amyloid deposits can be found in the submucosa of 70 to 80% of patients with amyloidosis by rectal biopsy (5,11).

It has become standard to take the biopsy from a relatively noninvasive site first, then proced to a specific organ biopsy if the less invasive site is negative. Thus a kidney biopsy is often a second biopsy site necessary to establish the diagnosis.

A kidney biopsy should be undertaken cautiously as it carries an increased risk of bleeding. Bleeding may be due to amyloid deposits in blood vessels, which impair hemostasis and occur in all amyloid types or may be due to clotting factor de-

Table 1. Age, sex and etiologic distribution of amyloid positive patients.

Cases	*Sex*	*Age*	*Etiology*	*Kidney*	*Duodenum*
1. M.S.	M	25	juvenile RA	amyloid +	amyloid +
2. S.D.	M	42	chronic bronchitis	amyloid +	amyloid +
3. A.B.	M	52	-	amyloid +	amyloid +
4. K.A.	M	33	FMF	amyloid +	amyloid +
5. S.G.	M	23	ankylosing spondylitis	amyloid +	amyloid +
6. D.R.	M	50	-	amyloid +	amyloid +
7. A.B.	F	34	FMF	amyloid +	amyloid +
8. S.Y.	F	31	FMF	amyloid +	amyloid +
9. K.D.	F	25	FMF	amyloid +	amyloid +
10. H.G.	F	18	-	amyloid +	amyloid +
11. E.B.	F	33	-	amyloid +	amyloid +
12. H.A.	F	30	-	amyloid +	amyloid +
13. A.B.	F	65	-	amyloid +	amyloid +
14. S.S.	F	20	FMF	amyloid +	amyloid +

ficiencies in the AL amyloid type (1).

In recent years, abdominal fat aspiration for diagnosing systemic amyloidosis has been widely used. It has been reported that positive results were between 76% and 88% at different series (12). Many studies were performed on amyloidosis involving the gastrointestinal system.

Gilat et al reported that amyloid was more frequently deposited in the mucosa of small bowel than of the stomach or colon on the basis of postmortem findings (8). Tada et al reported that histologic examination of biopsy specimens taken from various sites revealed that the most frequent and most marked amyloid deposits were found in the duodenum, especially in the second portion of duodenum (1).

Our results confirm this study and indicate that in all patients who were diagnosed as amyloidosis by kidney biopsy. Amyloid deposition can be found by crystal violet at duodenal endoscopic biopsy.

These results suggest that duodenal endoscopic biopsy may greatly contribute to the diagnosis of amyloidosis.

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