Characteristically positive Congo red staining, in addition to birefringence under polarized light was demonstrated (Fig. 4). With standard hematoxylin and eosin stained sections, amyloid manifests as a homogenous pink, amorphous substance readily seen in any part of the bowel wall. It has been estimated from autopsy studies that more than 75% of all systemic amyloidosis will have alimentary tract involvement.[1,14] In our case, amyloid deposits were mostly concentrated in the tunica media of submucosal or paracolic blood vessels. Additionally noticed are amyloids depositions in the proper muscle layer, replacing numerous myofibrils.

Amyloid deposition in tissues occurring in patients with multiple myeloma or other monoclonal B-lymphocyte proliferation is a well-acknowledged phenomenon. In The United States, this accounts for roughly 75% of all incidences of amyloidosis and is the commonest form.[1,14]

Dr. Daniel Chin:

Histochemical stains based on attached carbohydrate (P component) include metachromatic dyes (crystal violet, toluidine blue, etc.) and fluorochrome thioflavin. However, the most commonly and specifically used stain is Congo red, which imparts a faint red color to amyloid deposits under ordinary light (Fig. 4a) and traditionally apple-green birefringence under polarized lighting (Fig. 4b). The staining property of Congo red is principally due to the cross beta-pleated configuration of the amyloid fibers, in which staining molecules are wedged between the pleated proteins.

Dr. Be-Fen Chen:

Amyloid in its pure form is a specific fibrous proteinaceous substance pathologically deposited in diverse tissues of the body, affiliated with various clinical conditions. Classically, the generic term amyloidosis has been categorized into a generalized (or systemic) type, which may be further segregated into primary or secondary to chronic inflammatory diseases; and localized forms in which the affliction is limited to a single organ.

Dr. Jeffery Tzen:

According to Sipe,[2] amyloidosis is not deemed as a single disease, but a heterogeneous assemblage having tissue deposition of similar-appearing proteins.[3] Although the histological appearance of amyloid is the same in all forms of amyloidosis,[4] it is quite irrefutable that "amyloid" is not a chemically distinct single entity. Explicit chemical and antigenic differences allow for a newer, more exact biochemical classification of amyloidosis based on the dominant fibrillar protein.[5,6] There are about 15 chemically incongruous forms of amyloid proteins known to date, two major and several minor ones. Of the two principal types, the amyloid derived from plasma cells or immunocytes is referred to as the AL-type (amyloid light chain, most which are of the lambda type); the other is known as the AA-type (amyloid-associated), constituted by serum amyloid-associated fibril proteins synthesized intrahepatically but structurally dissimilar to immunoglobulins.

Dr. Daniel Chin:

Amyloid material in itself is an interlacing network of fibrils with a diameter of 7.5 to 10 nm, which can be recognized with certainty by electron microscopy.[7] In addition to being distinctively fabricated into a cross beta-pleated sheet conformation, a glycoprotein known as the P-component comprises 5% of the amyloid material.

Dr. Be-Fan Chen:

In our patient's circumstance of multiple myeloma (Fig. 1) diagnosed with iliac bone marrow needle biopsy, there is an immoderation of immunoglobulin light chains, for which inadequate degradation or resistance to proteolysis has been speculated. Consequently, it is this excessiveness that leads to amyloid deposition in tissues. The two most common types are grouped under the systemic (or generalized) category. The amyloidal fibrillary protein of the amyloid light chain (AL-type) is produced by immunoglobulin-secreting B lymphocytes, plasma cells, or immunocytes under monoclonal proliferate circumstances, and it is recognized as.primary amyloidosis. Whereas the so-called secondary amyloidosis or AA-type is most often attributed with chronic inflammatory disorders such as: ankylosing spondylitis, inflammatory bowel disease, or most commonly rheumatoid arthritis. Reactive systemic amyloidosis may also occur in renal cell carcinoma