The Arterial Spider and Similar Lesions of the Skin and Mucous Membrane

By William B. Bean, M.D.

Dr. BEAN: The topic for the conference today will be the arterial spider of the skin and other lesions of skin and mucous membrane which sometimes cause confusion in the minds of physicians. As background for the discussion I will start with a short autobiographic note. This chronicle may help answer a question many students have asked me: "How did you get started in clinical research?" I do not recall having noticed or having had called to my attention the vascular spider of liver disease when I was an undergraduate student of medicine at the University of Virginia. When I was an intern on Dr. Longcope's service at the Johns Hopkins Hospital, both Dr. Longcope and Dr. Hamman commented casually upon the spider and remarked on its frequent association with chronic liver disease. Neither one was able to give me any references to medical writings on the subject, nor was their own information very extensive. When I went to the Thordike Laboratory in Boston I again sought information on the significance of the spider and found that no one at that fountainhead of clinical research could give me any additional help. I inquired of Dr. George Minot, Dr. Soma Weiss, Dr. Chester Keefer, Dr. William Castle and many of their colleagues but was able to get no more information than in Baltimore. Following this, my migration westward began.

Arriving in Cincinnati, I found that the spider was well known. Dr. Blankenhorn was able to add a certain amount of information, but I am especially grateful to him for giving me access to a great many patients for what observations I chose to make.

Before this phase of the story goes too far I would like to have Dr. Mitchell tell us about a girl from the Pediatric Service.

Dr. Richard C. Mitchell: H. R., a 12 year old white girl, was admitted to the Pediatric Service on Jan. 29, 1953 with the diagnosis of recurrent hepatitis. She had a history of repeated episodes of jaundice over the past two years. She had been in good health until two years ago when she developed diarrhea, vomiting, and a slight fever. Four days after the onset of the illness her family noticed that she was becoming jaundiced. Her urine was a dark amber color, and her stools were clay-colored. She was kept in bed and given a high carbohydrate diet for three weeks. At the end of this time her jaundice had faded and she was allowed full activity. No inoculations had been given and no other skin punctures done prior to the onset of the illness. Approximately 12 other people in the same community had a similar illness at the same time. Since the first episode two years ago she has had four or five similar attacks. The most recent began during the latter part of December and continued through the time of her admission to this hospital. Normal activity has continued between the attacks. Her appetite has decreased somewhat. Her health, in general, has been excellent between the episodes of jaundice. She has not yet reached the menarche.

Physical examination upon admission to the hospital revealed a 12 year old girl with 2 plus icterus of skin and sclera. Arterial spiders were noted on both hands and on the right anterior thigh. There was no palmar erythema. The liver and spleen were both palpable 4 cm. below the costal margins. They were not tender and revealed no irregularities. The breast development and pubic hair were average for her age. Axillary hair was absent.
Her course in the hospital has been uneventful. She has been afebrile. Her jaundice has remained unchanged. Her stools have continued to have a clay-like appearance and the urine a dark, amber color. Her appetite has been good and her general demeanor excellent. Many additional spiders have appeared on the anterior chest, neck and face.

Laboratory examinations at the time of her admission were as follows: The urine was dark amber in color, negative for blood, albumin and sugar; microscopic examination showed bile stained crystals, and urobilinogen was 4 plus. Blood studies showed 9.5 Gm. hemoglobin, 3.5 million red blood cells, and 3,150 white blood cells. The total protein was 9.3 Gm. per 100 cc.; fibrinogen was 0.7 Gm., albumin, 1.7 Gm., and globulin, 6.9 Gm. The van den Berg test gave 16.3 mg. per 100 cc., direct, and 27.5 mg. per 100 cc., indirect. The cephalin flocculation test showed 4 plus in 24 hours and 4 plus in 48 hours. The thymol turbidity test was 15.1 units. Total cholesterol was 98 mg. per 100 cc., cholesterol esters 27 (27 per cent).

Dr. Bean: To those of you in the front rows the lesions appear as red spots. Pulsation is felt easily in the larger spiders and may be seen when a glass slide compresses the surface. The spider on the thigh is much lower on the body than is usual; and when they are found below the level of the navel there are many others in the blush area of face, neck and upper chest. The standard texts on pediatrics and monographs on liver disease in children have echoed with stubborn persistence the error that children with chronic liver disease do not get spiders. This is utterly wrong.

To get back to the story, in Cincinnati Dr. Donald Foster, Dr. Morton Hamburger and I undertook a very extensive study of the natural history of the vascular spider. We collected a great many cases, made numerous observations on the size, location, distribution and type of lesion in chronic liver disease and accumulated a very formidable body of material. What began as an interesting hobby became a fascinating theme for speculation and thought. We had many discussions. Since my interest in spiders was well known it was not surprising that several members of the intern and resident staff whose wives were pregnant came to me in a state of great concern when their wives developed spiders during pregnancy. Their only thought was that these might be some ominous indication of liver disease or perhaps even the dreaded acute yellow atrophy occasionally observed during pregnancy. Since I knew nothing of the significance of such vascular changes in the skin I advised a course of optimistic waiting. All the pregnancies turned out well. Since the children born were completely normal it dawned on us that the acquired arterial spider might occur as an apparently banal and insignificant complication of normal pregnancy as well as a stigma of chronic parenchymal disease of the liver.

In addition to the characteristic vascular spiders a number of other lesions such as the telangiectatic mat, paper money skin, changes in the vascular structure of the nose, palmar and occasionally plantar erythema were all noted. Many observations and studies failed to reveal any clinical or laboratory test which had any regular correlation with the emergence of vascular spiders. Their curious association with pregnancy became a mild obsession in my speculations. The one common denominator which was fairly well established between normal pregnancy and the state prevailing in chronic parenchymal disease of the liver was an increased urinary excretion and presumably an increased blood level of estrogens. By analogy it was not very difficult to suppose that potent steroid hormones might have an effect on blood vessels in the human skin as well as their classic and much studied effect upon the spiral arterioles of the endometrium and myometrium. This analogy was given some support by the physical structure of the spider which turned out to be a curious admixture of arterial and vein-like components. On the basis of these speculations powerful estrogens were given to several patients with cirrhosis who had recovered clinical well-being but still had residual liver damage. Some developed new spiders and palmar erythema. At this stage of the work I began to do systematic reading on the subject. There was a very considerable body of literature tucked in out-of-the-way places and to my surprise I found that many of the observations I had made were already recorded in medical writing in one place or
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Another. It is fortunate when clinical observation is allowed to run the early stages of its natural course uninfluenced by previous views and experience as recorded in medical writings. One thus has freedom from the bias of others although he must deal critically with his own bias. Among the things I found was a description by Erasmus Wilson, one of the first English specialists in dermatology. He described the vascular spider in an elegant, brief note which had remained buried for about 70 years. This note is short enough to read here in full. I call your attention to the fact that the man was a publican, that is a bartender, rather than a Republican which I cannot define.

"A publican, aged 30 years, had for some time yielded to the temptation of his calling, and had thereby injured his health, when he was suddenly attacked with epistaxis and to the epistaxis succeeded copious bleeding from the gums. After some time, and subsequently there appeared on the face, the neck, the hands, and the arms, an eruption of red papules with a diffuse areola. On presenting himself for consultation there were six of these popular spots on the face, chiefly on one cheek, two on the neck and three or four on the hands and forearms. It was evident, on careful examination, they were angiomata; the central prominence was vascular, and around this was a plexus of venules spreading out to the breadth of a quarter or half an inch. In one or two of the spots the central prominence was absent and a plexus alone existed, resulting from angiectasia, or multiplication and hypertrophy of the venous capillaries of the skin. The case is very rare, a sudden eruption of angiomata, and its association with hemorrhage from the mucous membrane of the nose and mouth is very instructive. We are unaware of the conditions of the economy which may tend to the sudden hypertrophy of blood vessels, but we can easily understand how such an occurrence, taking place upon the mucous membrane, might lead to serious hemorrhage; and there is no reason to suppose that the cause of the epistaxis in the instance before us, and the bleeding of the gums may not have been a sudden hypertrophy of blood vessels such as we have just described as appearing on the skin. And it appears to us that as a result, to the well-known hemorrhagic diathesis as a cause of hemorrhage there must also be added a sudden hypertrophy of blood-vessels and rupture of their coat as exemplified in the case before us."

A great deal had been added to the knowledge of vascular spiders by French observers Hanot and Gilbert, Steinmann, Emile-Wile and more recently in this country by Patek and his co-workers, Williams and Snell, Walsh and Becker and many others.*

Jonathan Hutchinson, whose masterful observations on syphilis are remembered in the name Hutchinson's teeth, has a little note in his Archives of Surgery, that magnificent repository for rare and unusual dermatologic lesions, about the occurrence of spiders as blemishes. He believed that they affected women primarily although he suggested that perhaps vanity was the reason why he saw more women than men with such lesions. In any event he established clearly the fact that they might occur in perfectly normal people and this point must be emphasized since arterial spiders are of clinical significance only when new ones appear, old ones enlarge or when they are numerous. Many people we consider perfectly normal have one or a few vascular spiders, frequently on the face near the eyes. Some notice them occasionally coming and going on the lower arms and back of the hands. Corbett, in a very brief note, referred to them in normal pregnancy as early as 1914 although this information and the additional occasional notices of them in pregnancy were never transferred by the specialists in dermatology to those in obstetrics. There is no mention of them until quite recently in American textbooks on obstetrics.

I confess to being the inadvertent source of an error which prevailed widely in the 1940's, a supposed connection of the arterial spider with deficiency diseases. During the spring and summer of 1940, 1941, and 1942 I had the opportunity of working in the nutrition clinic at Birmingham. There I devised the first record form for keeping observations on all the numerous patients with deficiency diseases. Because of my interest in spiders and palmar erythema I included in the chart for recording physical signs a place for observation on such lesions and I made systematic notes on about 700 patients with reference to arterial spiders and palmar erythema. My thought at the time was that this might be a relatively normal

* The references cited are included in the three papers referred to in the references.
population as far as liver disease was concerned. I found a great many subjects who had one or a few spiders but except for those who were pregnant or the few who had liver disease they never occurred in any considerable number. Furthermore they varied, coming and going erratically without any relationship to the nutritional state of the patient or the specific dietary and vitamin therapy. Visitors to the nutrition clinic, of whom there were many, used the record sheet as a model and, apparently supposing that whatever was found in the record of physical examination in a nutrition clinic must have some bearing on nutrition, the assumption was made that arterial spiders and palmar erythema had some definite although not fully understood connection with deficiency disease. I was astounded to find numerous subsequent reports attaching a nutritional significance to spiders. This persists to some degree although I have tried to correct this error.

As for palmar erythema, it too has a remarkable history. The first clear description was given by Chambers in 1899 in a brief note in the Lancet in which he described such a red color of the palm as commonplace among white inhabitants of the Gold Coast. It later was described completely independently by Lane as a familial or hereditary stigma of no significance to the patients concerned. Classic observations connecting palmar erythema and arterial spiders were made by Walsh and Becker whose paper gives the first illuminating study of a connection of these two lesions and their rather common occurrence in pregnant women. Apparently palmar erythema was recorded in pregnant women the first time by Forman in 1934. In this connection I should like to mention the fact that, in our original observations of patients with spiders, in several of my notes there are detailed descriptions of the anomalous color of the hands, its strange pattern, the increased warmth of the erythematous area and its association with spiders in chronic parenchymal disease of the liver. This observation must have been made almost mechanically since I thought nothing of it until reading the paper by Walsh and Becker at which time I went back to the records and found that I had been looking at the same sort of thing for four years without seeing it.

Description of liver palms or palmar erythema in chronic liver disease appeared nearly simultaneously in 1942 and 1943 in papers written by Ratnoff and Patek, Perera and myself.

There are two distinct varieties of palmar erythema. The first is simply an exaggeration of the ordinary speckled mottling of the palm and is diffuse without regular regional accentuation. In the more common type of "liver palms" the area of most intense redness is the hypothenar eminence and the next most common is the central aspect of the thenar eminence. In the region where the fingers join the hand there are apt to be islands or spots of erythema not directly under the palmar calluses but between them. The next most common area of redness is the palmar surface of the fingertips, and when the condition is extreme the process extends around on the back of the fingers in a horseshoe-like arrangement at the base of the nails. There may be a considerable variation in intensity of the red color from time to time. Characteristically it is bright red, but there may be some irregularity and at times there are cyanotic spots. Ordinarily there is a sharp line of demarkation between the red and the uninvolved skin. Minor variations in palmar redness are frequent. The correlation between severe chronic liver disease and palmar erythema is not as close as between severe liver disease and arterial spiders. If one analyzes the records from a large series, those with liver disease who have spiders are about twice as apt to have palmar erythema as those who do not. Contrariwise, those who have palmar erythema are about twice as apt to have spiders as those who do not. Obviously either may occur without the other, but their frequent association makes it seem likely that they are produced by the same general force. The distribution of the palmar and sometimes the plantar redness suggests that perpetual dilatation of glomus bodies may be responsible for the striking and fairly consistent pattern. These points remain to be established by further studies.

At this stage all my observations on spiders
came to a halt when I joined the Army and began working on tanks, adaptive physiologic processes in soldiers and many kinds of environment—fascinating topics which were well away from clinical medicine. The time in the Army did, however, give an unexcelled op-

Fig. 1. Arterial spiders and paper money skin.
opportunities for reflection and speculation, so that all the observations on several hundred patients and normal people were gathered together. Cullings from an extensive review of medical writings from approximately the hundred year period from 1845 to 1945 were...
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added. Furthermore I had the opportunity to write and rewrite a monograph on what was now for me a favorite topic, though one so far off the beaten path that I thought it too would be entombed with other observations on the arterial spider. I had, however, the fabulous luck of having it published at the end of World War II when, as you all know, hepatitis rather than influenza had proved to be the major epidemic of concern during the war. Liver disease and spiders were not only a timely topic but one of intrinsic importance. Having indulged a most esoteric and seemingly not useful or practical field for a medical hobby, I hit the jack-pot.

![Diagram of arterial spiders](image)

**Fig. 3.** Scale outline of actual arterial spiders.

The arterial spider, as the name suggests, is characterized by a body and legs (figs. 1 and 2). It has a surrounding erythema. The body or central point may be small or so large as to attract immediate notice. There is usually a relationship between the size of the body and the size of the whole lesion (fig. 3). There is a tendency for the body of the larger ones to become elevated, rarely as much as 0.5 cm. above the adjacent skin surface. Such lesions may be seen to pulsate. Palpable pulsation is found uniformly and may be demonstrated readily by applying a glass slide to the lesion and adjusting the pressure. Branching legs or radicles radiate from the central hub, spread out just under the plane of the skin and parallel to it. They may be clearly defined and relatively large or may be very numerous and hard to distinguish. Indeed some lesions present nothing more than a diffuse erythema. The vessels branch and become smaller fading out at the periphery. An area of erythema surrounds the central punctum and usually encompasses the visible radicles. The whole lesion surrounds the central punctum and usually encompasses the visible radicles. The whole lesion may be roughly circular although the star and cog-shaped lesions are common. The color of the spider is characteristic of the abundant arterial blood. It is bright, fiery red. The temperature of the spider may be as much as 3 C. higher than the uninvolved adjacent skin. Blood flows centrifugally from the body in all directions towards the periphery. This may be demonstrated when the spider is blanched by pressure with a pencil point or the finger and then suddenly released. Filling is from the center outward. Pulsations can be demonstrated most easily when spiders occur over bony structure such as the forehead, sternum or clavicle. The arrangement of collecting veins is that usual in the skin. In histologic preparations there are no venae comites. Spiders are rare in the scalp, rare in the axilla and other hairy regions although they may occur in the beard or on a hairy chest. Spiders have a very curious distribution with remarkable concentration around the face, the neck, upper portion of the chest and a diminishing concentration over the shoulders, the lower chest, upper and lower arms and dorsum of the hand (fig. 4). They are rare on the palms though they do occur. In spite of the girl we just saw they are notably rare in the body below the level of the diaphragm. I have never seen spiders below the diaphragm when they were not more numerous and larger in the upper portion of the body. That they occur in the lower extremities at all suggests that the factors governing their distribution are relative and not absolute.

**A Student:** Why are spiders so rare in the lower parts of the body?

**Dr. Bean:** I do not know. My speculation is that a humoral force and susceptible vascular structures are necessary. Since spiders are rare where the vasomotor gradient in the skin indicates a high degree of vasoconstriction, a humoral agent might not have time enough to produce its effect. Why don't you make that
a project to work on? We know very little of the exact pattern of distribution of many skin lesions, and even less about their cause.

Associated skin changes include paper money skin in which a number of readily seen small vessels are scattered in random fashion comparable to the silk threads in American paper money. The frequent occurrence of palmar erythema in people with many vascular spiders suggests that the forces which give rise to the one give rise to the other, although there is by no means an exact correlation and one kind of lesion may occur without the other. Shock-producing hemorrhage causes the lesions to fade, and they may be seen first only after transfusion has restored blood to normal.

A Student: Do such lesions occur anywhere besides in the skin?

Dr. Bean: Similar vascular abnormalities occur in the mucous membranes of the nose, the mouth, the pharynx, the hard and soft palate and probably along the mucosal lining of the alimentary canal. They may occur throughout the interior of the body but this point cannot be established since their post-mortem fading prevents conclusive evidence being brought to bear on this point. Spiders disappear frequently and fade invariably after death.

A Physician: Do they occur in families?

Dr. Bean: Family history for spiders may be positive, particularly if one can examine members of several generations. Most people are poor observers and do not know that other members of the family have them. Spiders vary in number and size in relationship with the clinical course of cirrhosis. As the disease improves they may fade or disappear and their fading suggests that clinical improvement is in the offing. They tend to occur in outbursts or increase in size at a time when liver failure is increasing. In pregnancy they tend to appear between the second and fifth months. They increase in size and number throughout gestation, disappearing just before delivery or during the puerperium. Large ones may persist.

A Student: What pressure exists in the spider?

Dr. Bean: Pressure within the arterial spider is somewhere between 60 and 100 mm. Hg as measured directly by applying a capsule to the lesion and connecting it with a mercury manometer.

Question: What is the histopathology of the spider?

Dr. Bean: Histologically there are two kinds of spiders. One apparently is simply an over-
grown end-artery in the skin. The other is a thickened, coiled artery in the subcutis much larger than those generally found in this region (fig. 5). In the walls are aggregations of glomus cells, the pericyte of Zimmermann, ancestor of ordinary vascular smooth muscle cells. They are irregularly disposed along the vessel wall and may occur in beads or hands. At the punctum there is an abrupt thinning of the wall which breaks up into numerous vessels which are vein-like, having very thin walls but, nonetheless, carrying arterial blood peripherally out to the capillaries and the venous collecting system. Thus the arterial spider is an overgrown end-artery usually containing many glomus cells in the walls of its major central artery and paradoxically it breaks up into many vessels which while carrying arterial blood have the structure of veins.

**Venous Star**

A Student: Are there other lesions in the skin which may be confused with the spider?

Dr. Bean: A lesion which only occasionally gives rise to confusion with the arterial spider is the venous star which is found in association with persistent elevations in venous pressure. At times they have a very close resemblance to arterial spiders. The stars usually overlie and are tributary to a vein of large size. Blood flows from the periphery of the star centrally and thence into the collecting vein; the direction of flow is the exact opposite of that in the arterial spider. The pattern, shape and size are much more variable than in the arterial spider. Although the color frequently is blue, in some instances it is bright red and in such circumstances the lesion may have a close resemblance to the spider. Most characteristically these lesions are seen to develop where new collateral veins are enlarging after obstruction of the superior vena cava. At first one may notice only a blue discoloration of the skin, but after a few days or weeks the characteristic star form appears with an irregular central spot, either blue or red, not much elevated above the skin. They may be 2 or 3 inches in diameter. Skin temperature is not higher than over adjacent skin. They are obliterated with pressure. They fill by reflux from their underlying vein. Thus filling is centrifugal, the same as in the spider, but the blood flow is reflux and reversed from the usual direction. Although stars commonly occur along the lower borders of the ribs, they do not follow the anatomic insertions of the diaphragm nor the juncture of the abdominal and costal wall. They are common on the dorsum of the feet, around the ankle and the lower legs both front and back, and above the knee on the medial aspect of the thigh. Smaller ones are apt to appear on the back just at the junction of the neck and thorax and over or just above the region of the sacrum, particularly in women. They are common only after adolescence, but

![Fig. 6. Incidence of venous stars by sex and decade.](http://circ.ahajournals.org/)

they may occur in children, particularly where some lesion produces an extensive collateral venous circulation (fig. 6). They are more common in women than men. I have seen stars develop over a period of 10 days and seen them disappear over a period of one to two months. Histologically they are dilated veins.

**Osler’s Disease**

Dr. Bean: Another lesion which we have considered in some detail in a recent clinical-pathological conference is the telangiectasis of Osler’s disease or hereditary hemorrhagic telangiectasia. Ordinarily this lesion in the skin is punctiform, usually flat but sometimes a little elevated. It has very sharp margins which separate it from the adjacent uninvolved
skin. Occasionally a single vessel is connected with the punctum. Sometimes there are several which gives it a close superficial resemblance to the arterial spider. Pulsation is usually harder to demonstrate than in the arterial spider. Solid cyanotic looking nodular forms exist. The mucous surfaces of the body may have a much thicker concentration of lesions than does the skin. They may exist in any part of the skin although they occur in the upper portions of the body more often than over the legs or feet. Mucosal telangiectases may be seen in Kiesselbach’s area in the nasal septum, at the tip and dorsum of the tongue, palate, pharynx and esophagus. Hemorrhages from the stomach, bowel, lung, brain, bladder, kidney and liver attest their universal range. They are very frequent on the palmar surface of the hands and fingers, common in the nail beds, the lips, and the ears (figs. 7 and 8). A history of bleeding in the family is invariable and the trait is inherited as a dominant characteristic. It is not sex-linked. Hemorrhage from these lesions, part of the Latin title, occurs with varying frequency and intensity. In mild instances of the disease bleeding is relatively infrequent and not very troublesome. In others continual bleeding is an ominous problem and never-ending hazard. The age at which bleeding begins varies. Nose bleeds in childhood, a period free from hemorrhage, or the reappearance of frequent hemorrhages at puberty or in the third decade when the telangiectases begin to become numerous should cause strong suspicion of the underlying disease. The pathologic alteration in Osler’s disease is a thinning out of the wall of the vessel, the loss of muscle and elastic tissue with a bulging and ballooning of the wall, and the development of tortuous coiled masses of tiny aneurysmal vessels including capillaries and small veins and arteries. Skin temperature over the lesion is not higher than over adjacent skin. Pulsation is rarely felt but occasionally can be demonstrated vividly, particularly when capillary pulsation exists. The existence

**Fig. 7.** Skin lesions in Osler’s Disease: The palm and fingers.
and growth of pulmonary arteriovenous aneurysms has thrown a new light on the dynamic state of this vascular anarchy.

CHERRY ANGIOMA

A Student: Are any other skin lesions mistaken for spiders?

Dr. Bean: Yes. The lesion called cherry angioma, or ruby spot, sometimes known as capillary angioma, senile angioma and in English medical writings referred to as DeMorgan's spot has been confused with the

spider at times. Since such lesions appear at early age and are relatively frequent after adolescence, it is best to drop the name "senile angioma" and call them by some purely descriptive name such as "cherry angioma" or "ruby spot." No one has demonstrated a familial tendency, but this point is hardly pertinent since they are found almost universally in elderly people and are quite common in early ages. The incidence rises sharply in the 30's so that approximately three-fourths of the persons observed after the age of 30 have such lesions. Thereafter they increase in frequency and in the 60's and 70's they are found almost universally.

Spontaneous hemorrhage has not been observed although occasionally injury to the angioma gives rise to very modest bleeding. The size and shape vary, but the characteristic lesion is small and flat during its early life, later increasing in size, becoming elevated with a dome or even a mushroom-like overhang. Rarely, they become so large that they are attached by a pedicle. In persons with the characteristic large lesion, small ones may be found, and, using magnification of 20 times, many lesions which escape inspection by the naked eye are brought into view. Such mag-
with old lesions there is some atrophy and fading or the color tends to be tinged with a brownish element. The size varies from lesions visible only with magnification to rare instances where the lesion is more than 1 cm. in diameter and attached to the skin by a pedicle. The skin temperature is slightly but probably not significantly lower than that of the adjacent skin.

Distribution of cherry angiomas in patients between the ages of 50 and 80 are demonstrated in figure 9 which should be compared with figure 3 of the distribution of arterial spiders. There are the following differences in distribution: The cherry angioma is much rarer on the face and neck and there are proportionately more on the back. They are quite common on the abdomen, relatively common on the lower part of the body. They are not as common on the upper and lower extremities as they are on the trunk. Rarely they occur in hairy portions of the body and a few have been observed in the scalp. The number of individual lesions vary from zero to as many as 300 I counted in one patient. Usually there are somewhere between 10 and 50 in older subjects. The changing incidence with aging is seen in figure 10. No connection with any particular underlying disease has been noted in a series of observations of approximately 1000 patients seen in the office and on the medical wards during the past 18 months.

**Dr. Charles May:** Have arterial spiders been observed in persons getting large doses of estrogens?

**Dr. Bean:** Where patients are treated for menopausal symptoms and where large doses of estrogens are given for carcinoma of the prostate, the development of many new spiders has not been observed. This may be because they are not looked for. Or they may not occur. I have hunted for them in a few cases and not found them, but a systematic study is needed to settle this very searching question.

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**Fig. 9.** Distribution of cherry angioma in adults aged 50 to 80. Compare with figure 4.

**Fig. 10.** Incidence of cherry angioma by sex and decade.

**Dr. Rubin Nomland** (Professor of Dermatology): Before Dr. Bean made his series of classic observations, spider nevi belonged to the dermatologist. We are often consulted about them, and of course can remove them with the electric needle. They may recur if not completely obliterated. A good many fall into the class of ordinary birthmarks and they are fairly common, especially in children and young adults.

**Dr. Robert Duff:** What is known about the nerve supply of the spider? Do they have sympathetic fibers?

**Dr. Bean:** I know nothing. My collection of many serial sections from about 25 spiders was lost during World War II and I have not studied the nerves.
Are there any more questions? If not, we may summarize briefly: the eruption of new spiders, or enlargement of old ones marks the advent or worsening of chronic parenchymal disease of the liver. Spiders are uncommon in obstructive jaundice but may appear late in the disease. In pregnancy they tend to appear from the second to the fifth month, sometimes fading out several days before delivery, usually fading at the time of delivery and during the early postnatal period. I have suggested that steroid hormones, especially estrogenic ones lead to this overgrowth of vessels in the skin. Their structure, distribution, histology and physiologic features have been indicated briefly.

Characteristics whereby they are differentiated from venous stars, Osler's hereditary hemorrhagic telangiectasia and the cherry angioma have been outlined. This being the first time in five years of these conferences that I have dared speak about spiders, I hope I will be pardoned for an intensely personal point of view. It may give a clue to one approach to clinical research which should stimulate and perhaps comfort those whose picture of clinical science has held only bubbling retorts, Geiger counters and ultracentrifuges.

Finally, in accordance with our custom of ending these conferences with a light note, I will bring you up to date on the latest variant on Mother Goose:

An older Miss Muffet
Decided to rough it
And lived upon whiskey and gin.
Red hands and a spider
Developed outside her—
Such are the wages of sin.

REFERENCES

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Circulation. 1953;8:117-129
doi: 10.1161/01.CIR.8.1.117
Circulation is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231
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Print ISSN: 0009-7322. Online ISSN: 1524-4539

The online version of this article, along with updated information and services, is located on the World Wide Web at:
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