Article / Review

Bolalarda gemorragik vaskulit kechishining zamonaviy klinik-epidemiologik xususiyatlari

L.K.Raxmanova[1] , M.M.Boltaboeva[2] , A.M.Nizamutdinov[2]

1. Toshkent davlat tibbiyot universiteti, Toshkent, O'zbekiston.
3. Andijon davlat tibbiyot instituti, Andijon, O'zbekiston.

Mas'ul muallif: Raxmanova Lola Karimovna, Toshkent davlat tibbiyot universiteti Oilaviy tibbiyotda bolalar kasalliklari kafedrasi professori.

Correspondence author: Lola K. Rakhmanova, Professor, Department of Pediatrics in Family Medicine, Tashkent State Medical University.

e-mail: lola.rahmanova61@mail.ru.

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Yozishmalar: *Toshkent davlat tibbiyot universiteti, O'zbekiston, 100109, Toshkent sh., Farobiy 2.*

Annotatsiya.

Kirish. Adabiyotlar ma'lumotlariga ko'ra, gemorragik vaskulit (Henoch–Schonlein purpurasi) bolalarda eng ko'p uchraydigan sistemali vaskulitlardan biri bo'lib, so'nggi yillarda kasallik nafaqat maktabgacha va kichik maktab yoshida balki o'smir bolalarda ham ko'payib bormoqda va ko'pincha respirator infeksiyalar, allergik holatlar va immun tizimidagi o'zgarishlar bilan bog'liq holda rivojlanmoqda. **Tadqiqot maqsadi** - bolalarda gemorragik vaskulit (Henoch–Schonlein purpurasi) kechishining zamonaviy klinik-epidemiologik xususiyatlarini o'rganish. **Material va usullar**. Bolalardagi gemorragik vaskulitga (Henoch–Schonlein purpurasi) bagishlangan so'nggi o'n yillikda chop etilgan ilmiy adabiyot ma'lumotlari retrospektiv tahlil qilindi. Olingan ma'lumotlar yillar bo'yicha matematik tekshirildi va taqqoslandi. **Natijalar va muxokama**. Tadqiqot natijalari shuni ko'rsatdiki, kasallik patogenezida immun komplekslar hosil bo'lishi, tomir devorlarining yallig'lanishi hamda mikrotsirkulyatsiya buzilishlari muhim o'rin tutadi. Klinik manzarasida teri gemorragik toshmalari, bo'g'im, qorin sindromlari, buyrak shikastlanishi va aralash simptomlar yetakchi o'rin tutmoqda. Shuningdek, kasallikning kechishi individual xususiyatlarga ega bo'lib, uning og'irlik darajasi asosiy klinik simptomlari va asoratlar rivojlanishi bilan belgilanmoqda. **Xulosa**. Tadqiqot natijasida olingan ilmiy ma'lumotlar gemorragik vaskulitni erta aniqlash, xavf omillarini baholash hamda kasallik kechishini prognoz qilishda zamonaviy klinik-epidemiologik xususiyatlarni chuqur o'rganish muhim ahamiyatga ega ekanligini ko'rsatadi.

Kalit so'zlar: bola, gemorragik vaskulit, epidemiologiya, klinika.

Modern Clinical and Epidemiological Features of The Course of Hemorrhagic Vasculitis in CHildren

L.K.Rakhmanova[1] , M.M.Boltaboeva[2] , A.M.Nizamutdinov[2]

1. Tashkent State Medical University, Tashkent, Uzbekistan.
3. Andijan State Medical Institute, Andijan, Uzbekistan.

Correspondence: *Tashkent State Medical University, Uzbekistan, 100109, Tashkent city, Farobiy 2.*

Abstract.

Introduction. According to the literature, hemorrhagic vasculitis (Henoch-Schonlein purpura) is one of the most common systemic vasculitis in children. In recent years, the disease has been increasing not only in preschool and primary school children, but also in adolescents, and often develops in connection with respiratory infections, allergic conditions, and changes in the immune system. The aim of the study is to study the modern clinical and epidemiological characteristics of the course of hemorrhagic vasculitis (Henoch–Schonlein purpura) in children. Materials and methods. A retrospective analysis of the scientific literature published in the last decade on hemorrhagic vasculitis (Henoch–Schonlein purpura) in children was performed. The obtained data were mathematically verified and compared by year. Results and discussion. The results of the study showed that the formation of immune complexes, inflammation of the vascular walls, and microcirculation disorders play an important role in the pathogenesis of the disease. In the clinical picture, hemorrhagic skin rashes, joint and abdominal syndromes, kidney damage, and mixed symptoms are the leading ones. Also, the course of the disease has individual characteristics, and its severity is determined by the main clinical symptoms and the development of complications. Conclusion. The scientific data obtained as a result of the study indicate that in-depth study of modern clinical and epidemiological characteristics is important for early detection of hemorrhagic vasculitis, assessment of risk factors, and prognosis of the course of the disease.

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Key words: child, hemorrhagic vasculitis, epidemiology, clinic.

Kirish. Gemorragik vaskulit yoki immunoglobulin A bilan bog‘liq vaskulit (IgA vasculitis, Henoch–Schonlein purpura) bolalar orasida eng ko‘p uchraydigan tizimli vaskulitlardan biri hisoblanadi [1,2]. Ushbu kasallik kichik kalibrli qon tomirlarning immun yallig‘lanishi bilan tavsiflanadi hamda ko‘pincha teri, bo‘g‘imlar, oshqozon-ichak tizimi va buyraklarning zararlanishi bilan namoyon bo‘ladi [3,4]. So‘nggi yillarda olib borilgan ilmiy tadqiqotlar gemorragik vaskulitning epidemiologiyasi, etiologiya, patogenezi hamda klinik kechish xususiyatlarini chuqurroq o‘rganish zarurligini taqozo etmoqda[5,6].

Tadqiqot maqsadi - bolalarda gemorragik vaskulit (Henoch–Schonlein purpurasi) kechishining zamonaviy klinik-epidemiologik xususiyatlarini o‘rganish.

Epidemiologiyasi. Epidemiologik kuzatuvlar gemorragik vaskulit bolalar orasida eng keng tarqalgan vaskulit shakli ekanligini ko‘rsatadi [7,8]. So‘nggi yillarda bolalarda gemorragik vaskulitning epidemiologik xususiyatlarini o‘rganishga qaratilgan ko‘plab ilmiy tadqiqotlar olib borilmoqda. Turli mamlakatlarda o‘tkazilgan tadqiqotlar natijalari kasallikning uchrash chastotasi, klinik kechishi hamda asoratlari bo‘yicha muhim ilmiy ma'lumotlarni taqdim etadi.

Turli mamlakatlarda kasallikni qayd qilinish ko’rsatkichi yiliga 10–25 holat /100 000 bolani tashkil etmoqda[9,10]. Gemorragik vaskulit eng ko‘p 3–10 yosh oralig‘ida uchraydi va o‘g‘il bolalarda qizlarga nisbatan yuqori foizni tashkil etishi kuzatilmoqda[11,12].

Bir qator tadqiqotlar kasallikning mavsumiy xususiyatga ega ekanligini ko‘rsatadi. Gemorragik vaskulit ko‘pincha kuz va qish oylarida ko‘proq qayd etiladi. Ushbu hol kasallik rivojlanishi ko’pincha aynan respirator infeksiyalar tarqalishi bilan bog‘liq ekanligini tasdiqlaydi [13–15]. Ayrim epidemiologik tadqiqotlar kasallik tarqalishining geografik hududga qarab farqlanishini ham qayd etgan [16,17].

Adabiyotlar tahlili shuni ko‘rsatadiki, gemorragik vaskulit bolalar populyatsiyasida eng ko‘p uchraydigan sistemali vaskulitlardan biri hisoblanadi. So‘nggi yillarda o‘tkazilgan epidemiologik tadqiqotlarning asosiy natijalari [18-22] 1-jadvalda keltirilgan.

1-jadval. Bolalarda gemorragik vaskulitni dunyo bo’yicha epidemiologik tekshiruv natijalari (2017-2024 yy.).

Table 1. Results of a global epidemiological survey of hemorrhagic vasculitis in children (2017-2024).

Muallif	Yil	Davlat	Tadqiqot dizayni	Bemorlar soni	Asosiy natijalar
Piram M.	2017	Fransiya	Retrospektiv kohort	1002	Kasallik chastotasi 18/100 000
Gardner-Medwin J	2019	Buyuk Britaniya	Populyatsion tadqiqot	748	O‘g‘il bolalarda ko‘proq
Shin J.	2020	Janubiy Koreya	Klinik kuzatuv	612	Nefrit 27 %
Yang Y.	2021	Xitoy	Prospektiv kohort	1200	Abdominal sindrom 52 %
Oni L.	2023	AQSh	Multimarkaz tadqiqot	830	Qaytalanuvchi shakl 18 %
Kilic S.	2024	Turkiya	Klinik kuzatuv	540	Nefrit 30 %

1-jadvalda keltirilgan ma'lumotlar shuni ko‘rsatadiki, bolalarda gemorragik vaskulit dunyoning turli mamlakatlarida keng tarqalgan tizimli vaskulitlardan biri hisoblanadi. Turli mualliflar tomonidan olib borilgan tadqiqotlar natijalariga ko‘ra kasallikning uchrash chastotasi va klinik kechishi ma'lum darajada o‘xshash bo‘lib, ko‘pchilik hollarda teri, bo‘g‘im va oshqozon-ichak tizimi zararlanishi bilan namoyon bo‘ladi. Shuningdek, ayrim tadqiqotlarda buyrak zararlanishi kasallikning eng muhim asoratlaridan biri sifatida qayd etilgan. Ushbu ma'lumotlar gemorragik vaskulitda klinik va epidemiologik xususiyatlarini xisobga olgan holda ichki a’zolar zararlanishini chuqur o‘rganish zarurligini tasdiqlaydi.

Etiologiya va patogenezi. Gemorragik vaskulit etiologiyasi ko‘p omilli hisoblanadi. Shu jumladan, infeksion agentlar, allergik reaksiyalar, dorilar hamda genetik moyillik kasallik rivojlanishida muhim rol o‘ynashi mumkin [23,24].

Infeksion omillar orasida streptokokk infeksiyasi, adenovirus, parvovirus B19

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hamda respirator viruslar asosiy qo‘zg‘atuvchi faktorlar sifatida ko‘rsatilgan [25–27]. Ayrim mualliflar esa allergik kasalliklar va gemorragik vaskulit o‘rtasida muayyan bog‘liqlik mavjudligini ta’kidlaydi [28,29].

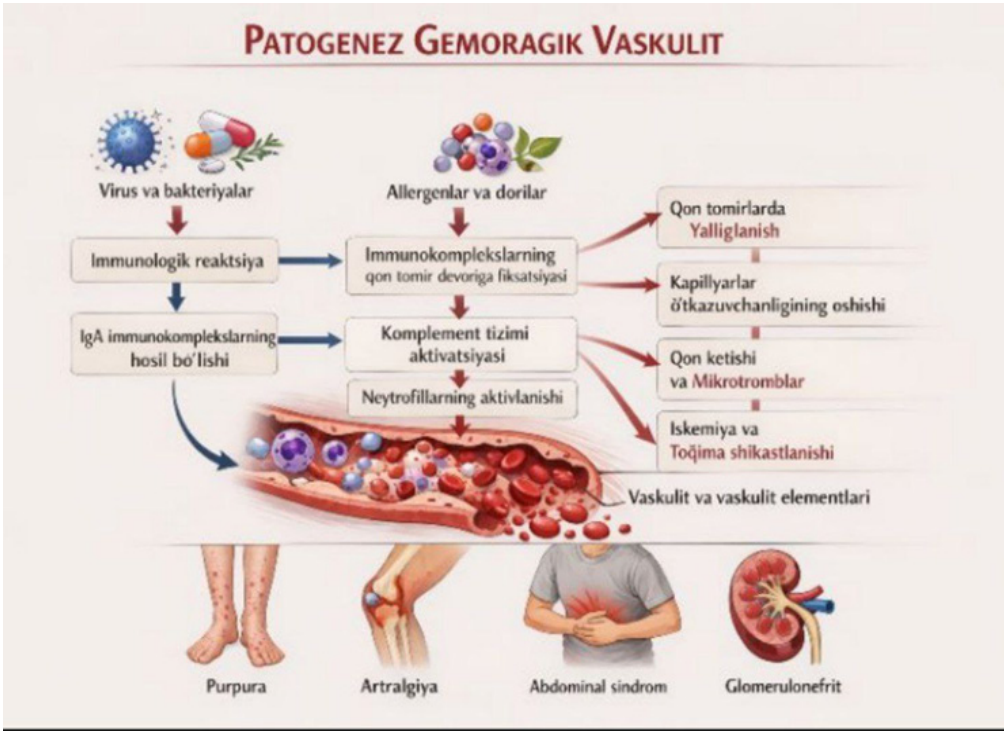
Kasallik patogenezida IgA immun komplekslarining hosil bo‘lishi muhim rol o‘ynaydi. IgA1 molekulalarining glikozillanishidagi nuqsonlar natijasida hosil bo‘lgan immun komplekslar tomir devorlarida to‘planib, komplement tizimining faollashuviga olib keladi [30–32]. Natijada kichik kalibrli qon tomirlarda leykotsitoklastik vaskulit rivojlanadi. So‘nggi tadqiqotlar komplement tizimining alternativ hamda lektin yo‘llari faollashuvi ham kasallik rivojlanishida muhim rol o‘ynashini ko‘rsatmoqda [33–35] (2-jadval).

2-jadval. Gemorragik vaskulit patogenezining asosiy immunologik mexanizmlari.
Table 2. The main immunological mechanisms of the pathogenesis of hemorrhagic vasculitis.

Patogenetik bosqich	Asosiy mexanizm	Natijasi
Infeksion trigger	Streptokokk, viruslar	Immun javob faollashadi
IgA sintezining buzilishi	Galaktoza yetishmovchiligi	IgA1 patologik shakllari
Immun komplekslar hosil bo‘lishi	IgA + antitanalar	Qon tomir devorida to‘planish
Komplement tizimi faollashuvi	Alternativ va lektin yo‘llari	Yallig‘lanish jarayoni
Neytrofillar infiltratsiyasi	Leykotsitoklastik vaskulit	Tomir devori zararlanishi

2-jadvalda keltirilgan ma'lumotlardan ko‘rinib turibdiki, gemorragik vaskulit patogenezida immunologik mexanizmlar yetakchi rol o‘ynaydi. Ayniqsa IgA immun komplekslarining hosil bo‘lishi va ularning kichik qon tomirlar devorida to‘planishi yallig‘lanish jarayonining rivojlanishiga olib keladi. Natijada komplement tizimining faollashuvi va neyrofillarning infiltratsiyasi kuzatilib, leykotsitoklastik vaskulit shakllanadi. Ushbu jarayonlar kasallikning asosiy klinik belgilari va asoratlarining rivojlanishiga sabab bo‘ladi (1-rasml).

1-rasm. Gemorragik vaskulit rivojlanishining immun-patogenetik mexanizmi.
Figure 1. Immune-pathogenetic mechanism of the development of hemorrhagic vasculitis.



Rasmda immunokomplekslar hosil bo‘lishi, komplement tizimi aktivatsiyasi, neyrofillar faollashuvi va kapillyar devori shikastlanishi natijasida purpura, artralgiyalar, abdominal sindrom va glomerulonefrit shakllanishi tasvirlangan.

Klinik manzarasi. Gemorragik vaskulit ko‘p organli zararlanish bilan tavsiflanadi [36]. Kasallikning asosiy klinik belgilariga teri purpurasi, bo‘g‘im sindromi, abdominal sindrom hamda buyrak zararlanishi kiradi [37]. Teri sindromi. Teri zararlanishi gemorragik vaskulitning eng muhim klinik belgisi hisoblanadi va deyarli 100% bemorlarda kuzatiladi

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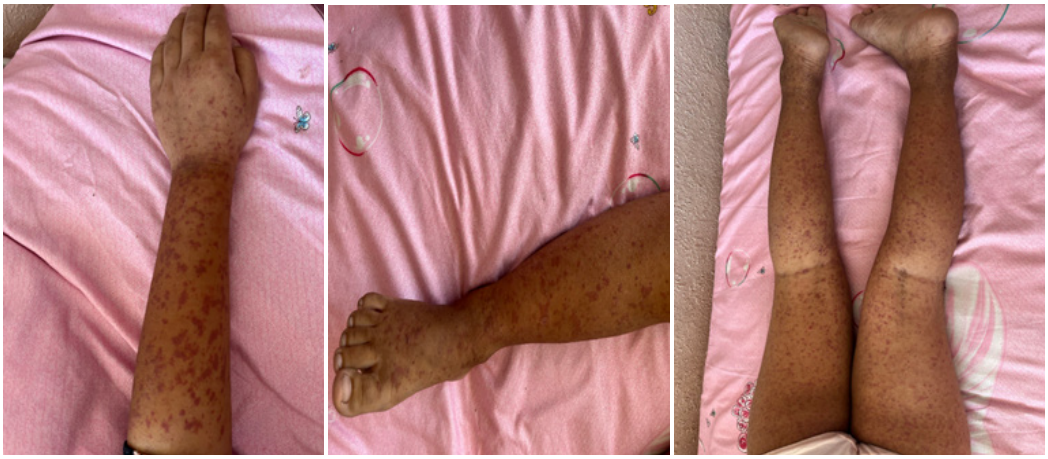
[38]. Palpatsiyalanuvchi purpura odatda pastki oyoqlar, dumba hamdaqo‘llarda joylashadi (2-rasm).

2-rasm. Gemorragik vaskulitda toshmalarning tipik joylashuvi.
Figure 2. Typical location of rashes in hemorrhagic vasculitis.



Bo‘g‘im sindromi. Bo‘g‘im zararlanishi bemorlarning 60–80 % da kuzatiladi [39]. Ko‘pincha tizza va to‘piq bo‘g‘imlarida artralgiyalar yoki o‘tkinchi artrit rivojlanadi.

Abdominal sindrom. Oshqozon-ichak tizimining zararlanishi 40–70 bemorlarda qayd etiladi [40]. Bunda qorinda og‘riq, qusish, ich ketish, ba’zan esa ichakdan qon ketishi kuzatilishi mumkin [41,42].

Buyrak zararlanishi. Buyrak zararlanishi gemorragik vaskulitning eng muhim prognostik omili hisoblanadi [43]. Tadqiqotlarga ko‘ra, buyrakning zararlanishi 20–50% bemorlarda gematuriya va proteinuriya bilan namoyon bo‘luvchi nefrit shaklida kuzatiladi [44-46]. Buyrakning zararlanish belgilari gemorragik vaskulitdan keyin 2-4 hafta o’tib rivojlanadi va glomerulonefrit shaklida kuzatiladi. Patogenetik jihatdan mezangiumga aylanuvchi immun kompleks to’planadi va mezangial epithelial hujayralar proliferatsiyasiga sabab bo’ladi. Bunining oqibatida buyrak sindrominng fokal - mezangioproliferativ, diffuz – mezangial, diffuz – fokal-proliferativ va mezangiokapillyar shakldagi asoratlar rivojlanishi mumkin [44-46]. Adabiyotlar tahliliga ko‘ra, gemorragik vaskulitning asosiy klinik sindromlari va ularning uchrash chastotasi 3-jadvalda keltirilgan.

3-jadval. Gemorragik vaskulitda klinik sindromlarning uchrash chastotasi.
Table 3. Frequency of clinical syndromes in hemorrhagic vasculitis.

Klinik sindrom	Uchrash chastotasi (%)	Klinik tavsif
Teri purpurasi	95–100 %	Palpatsiyalanuvchi gemorragik toshma
Bo‘g‘im sindromi	60–80 %	Artralgiyalar, artrit
Abdominal sindrom	40–70 %	Qorin og‘rig‘i, ich ketish
Buyrak sindromi	20–50 %	Gematuriya, proteinuriya
Nevrologik asoratlar	1–5 %	Bosh og‘rig‘i, tutqanoq

3-jadvalda keltirilgan ma’lumotlar tahlili shuni ko‘rsatadiki, gemorragik vaskulit klinik jihatdan polissindromal kasallik bo‘lib, uning namoyon bo‘lishi turli organ va tizimlar ishtirokida kechadi. Teri sindromining deyarli barcha bemorlarda (95–100%) kuzatilishi ushbu kasallikning eng barqaror va diagnostik jihatdan muhim belgisi ekanligini tasdiqlaydi. Shu bilan birga, bo‘g‘im sindromi (60–80%) va abdominal sindrom (40–70%) yuqori chastotada uchrashi kasallikning tizimli xarakterga ega ekanligini ko‘rsatadi.

Ushbu holat klinik amaliyotda bemorlarni baholashda kompleks yondoshuv zarurligini belgilaydi. Ayniqsa, buyrak sindromining 20–50% hollarda aniqlanishi kasallik prognozi nuqtai - nazaridan hal qiluvchi ahamiyatga ega ekanligini ko‘rsatadi. Nefrit rivojlanishi uzoq muddatli asoratlar, jumladan surunkali buyrak yetishmovchiligi xavfi bilan bog‘liq bo‘lganligi sababli, mazkur guruh bemorlari alohida dinamik kuzatuvni talab qiladi.

Kam uchraydigan nevrologik va boshqa tizimli asoratlar (1–5%) esa, kasallikning og‘ir va atipik kechish shakllarini ifodalaydi hamda individual yondashuvni talab qiladi (3-rasm).

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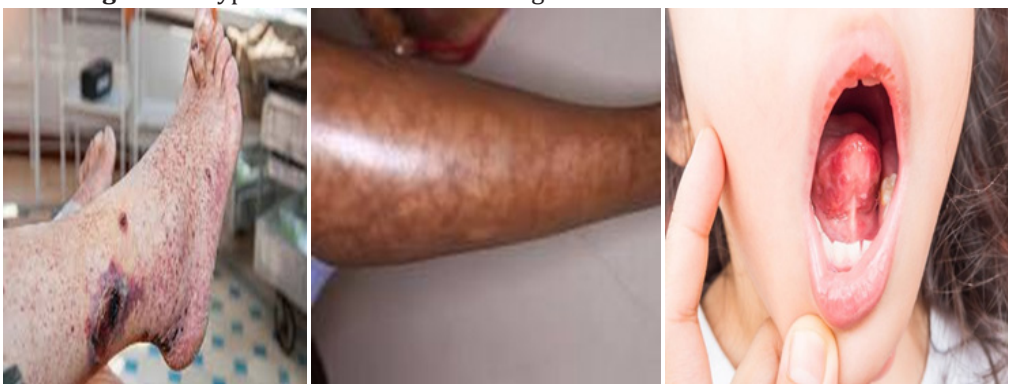
Shunday qilib, jadval ma'lumotlari asosida gemorragik vaskulitning klinik ko'rinishlari turlicha chastotada namoyon bo'lishi, uni erta diagnostika qilish va asoratlarni oldini olishda har bir sindromni chuqur baholash muhim ahamiyatga ega ekanligi xulosa qilindi.

3-rasm. Gemorragik vaskulitning atipik kechish variantlari.
Figure 3. Atypical variants of hemorrhagic vasculitis.

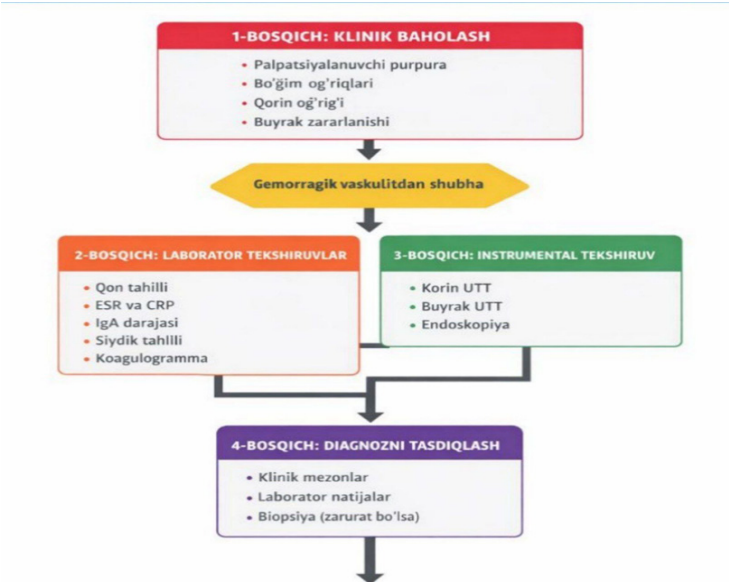


Zamonaviy diagnostikasi. Gemorragik vaskulit diagnostikasida klinik belgilar yetakchi o'rin egallasa-da, laborator tekshiruvlar kasallik faolligi va og'irligini baholashda muhim ahamiyatga ega. Adabiyotlar ma'lumotlariga ko'ra, C-reaktiv oqsil darajasi, eritrotsitlar cho'kish tezligi hamda leykotsitoz kabi yallig'lanish ko'rsatkichlarining oshishi kasallikning faol bosqichini aks ettiradi [47].

So'nggi yillarda tizimli yallig'lanish indekslari - neytrofil-limfotsit nisbati (NLR) va trombotsit-limfotsit nisbati (PLR) kasallik og'irligini baholashda istiqbolli biomarkerlar sifatida keng o'rganilmoqda [48,49]. Ushbu ko'rsatkichlar organizmdagi yallig'lanish jarayonining intensivligini aks ettirib, klinik kechishni prognoz qilishda qo'shimcha diagnostik mezon sifatida qo'llanilishi mumkin. Bundan tashqari, sitokinlar profili va immunologik markerlarning o'zgarishi kasallik patogenezini chuqurroq tushunish hamda prognozni aniqlashda muhim ahamiyat kasb etadi [50].

Bolalarda gemorragik vaskulitni erta va aniq diagnostika qilish kasallikning og'ir asoratlarini oldini olishda muhim ahamiyatga ega. Zamonaviy klinik amaliyotda kasallik diagnostikasi klinik belgilar, laborator tekshiruvlar hamda instrumental tadqiqotlar natijalariga asoslanadi. Gemorragik vaskulitni aniqlashda bosqichma-bosqich yondashuv qo'llaniladi. Bolalarda gemorragik vaskulitni diagnostika qilishning zamonaviy algoritmi 4-rasmda keltirilgan.

4-rasm. Bolalarda gemorragik vaskulitni zamonaviy diagnostika algoritmi.
Figure 4. Modern diagnostic algorithm for hemorrhagic vasculitis in children.



Prognozi va asoratlari. Gemorragik vaskulit ko'pincha bolalarda nisbatan qulay prognoz bilan kechadi va odatda bir necha hafta davomida regressiyaga uchraydi [46].

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Shunga qaramay, ayrim bemorlarda kasallik qaytalanuvchi yoki uzoq davom etuvchi shaklga o‘tishi mumkin [47]. Kasallik prognozini belgilovchi asosiy omillardan biri buyrak zararlanishidir [48]. Nefrit rivojlanishi ayniqsa muhim klinik ahamiyatga ega bo‘lib, u uzoq muddatli asoratlar bilan bog‘liq bo‘lishi mumkin. Gemorragik vaskulit oqibatidagi nefrit aksariyat hollarda og‘ir kechadi va surunkali buyrak yetishmovchiligi rivojlanish xavfi yuqori foizni tashkil qiladi [49-51]. Shu sababli gemorragik vaskulit bilan og‘rigan bolalarda buyrak funksiyasini muntazam monitoring qilish va erta diagnostika qilish muhim ahamiyat kasb etadi. Kasallik prognoziga ta’sir etuvchi asosiy omillar 4-jadvalda keltirilgan.

4-jadval. Bolalarda gemorragik vaskulit prognoziga ta’sir qiluvchi asosiy omillar.
Table 4. Main factors influencing the prognosis of hemorrhagic vasculitis in children.

Prognostik omil	Tadqiqot natijalari	Klinik ahamiyati
Yosh >10 yil	Nefrit xavfi yuqori	Og‘ir kechish ehtimoli
Abdominal sindrom	Nefrit bilan bog‘liq	Og‘ir vaskulit
Proteinuriya >1 g/kun	Prognoz yomon	Buyrak zararlanishi
IgA darajasi yuqori	Immun faollik	Kasallik aktivligi
CRP va EChT yuqori	Kuchli yallig‘lanish	Og‘ir kechish
NLR va PLR nisbati indekslari	Yangi biomarker	Prognozni baholash
Izox: EChT-Eritrotsit cho`kish tezligi, CRP-C-reaktiv oqsil, yallig‘lanish biomarkeri, NLR-neytrofil va limfotsitlar nisbati, PLRtTrombotsit va limfotsitlar nisbati		

Bu omillarni hisobga olish klinik amaliyotda kasallikning og‘ir kechishini oldindan baholash va individual davolash strategiyasini tanlash imkonini beradi.

Muhokama. O‘tkazilgan tadqiqot natijalari bolalarda gemorragik vaskulitning klinik va epidemiologik xususiyatlari adabiyotlarda keltirilgan ma’lumotlar bilan umumiy jihatdan mos kelishini ko‘rsatdi. Xususan, kasallikning eng ko‘p 3-10 yoshda uchrashi hamda o‘g‘il bolalarda nisbatan yuqori chastotada kuzatilishi boshqa mualliflar tomonidan ham qayd etilgan [1, 3, 7]. Tadqiqot davomida kasallikning mavsumiyligi, ayniqsa kuz-qish oylarida ko‘proq uchrashi aniqlanib, bu holat respirator infeksiyalar bilan bog‘liqligi ehtimolini yana bir bor tasdiqlaydi [9,13].

Shu jihatdan infeksion triggerlarning gemorragik vaskulit rivojlanishidagi ahamiyati muhim ekani adabiyotlarda ham keng yoritilgan [25, 26]. Klinik jihatdan, bemorlarning aksariyatida teri purpurasi yetakchi simptom sifatida kuzatildi, bu esa uning diagnostik ahamiyatini tasdiqlaydi [36, 37]. Bo‘g‘im va abdominal sindromlarning yuqori chastotada uchrashi kasallikning polisindromal xususiyatga ega ekanligini ko‘rsatadi va boshqa tadqiqotlar natijalari bilan mos keladi [39,40].

Buyrak zararlanishi gemorragik vaskulit uchun alohida e’tiborga loyiq bo‘lib, tadqiqotda aniqlangan nefrit chastotasi adabiyotlarda keltirilgan 20-50 % holatlarda kuzatilayotgani aniqlangan[44, 45]. Ayrim mualliflar nefrit rivojlanishini kasallik prognozini belgilovchi asosiy omil sifatida ta’kidlaydilar [48, 50], bu esa olingan natijalarga mos keladi.

Laborator ko‘rsatkichlar tahlili shuni ko‘rsatdiki, yallig‘lanish markerlari (CRP, EChT) oshishi kasallik faolligi bilan bog‘liq bo‘lib, ushbu holat boshqa tadqiqotlarda ham tasdiqlangan [47]. Shu bilan birga, neytrofil-limfotsit (NLR) va trombotsit-limfotsit (PLR) nisbatlari so‘nggi yillarda istiqbolli biomarkerlar sifatida o‘rganilmoqda, biroq ularning prognozdagi aniq o‘rni hali to‘liq aniqlanmagan [48, 49].

Shuni ta’kidlash joizki, mavjud tadqiqotlar natijalari o‘rtasida ayrim tafovutlar saqlanib qolmoqda. Bu holat tadqiqot dizayni, bemorlarni tanlash mezonlari va kuzatuv davomiyligidagi farqlar bilan izohlanadi. Shu sababli, kelgusida standartlashtirilgan va ko‘p markazli tadqiqotlar o‘tkazish zarur.

Shunday qilib, olingan natijalar gemorragik vaskulitning klinik va epidemiologik xususiyatlari hamda laborator ko‘rsatkichlari o‘rtasida muayyan bog‘liqlik mavjudligini ko‘rsatib, kasallik kechishini baholash va prognoz qilishda kompleks yondashuv muhim ahamiyatga ega ekanligini tasdiqlaydi.

Xulosa. Gemorragik vaskulit bolalar yoshida uchraydigan eng keng tarqalgan sistemali vaskulitlardan biri bo‘lib, kichik kalibrli qon tomirlarning immun-kompleksli zararlanishi bilan tavsiflanadi. Adabiyotlar tahlili shuni ko‘rsatadiki, kasallik polisindromal klinik kechish bilan xarakterlanib, teri, bo‘g‘imlar, oshqozon-ichak tizimi va ayniqsa buyraklarning zararlanishi bilan namoyon bo‘ladi.

Epidemiologik ma’lumotlar kasallikning asosan bolalar populyatsiyasida keng

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tarqalganligini, uning rivojlanishida infeksion va immunologik omillar muhim rol o‘ynashini tasdiqlaydi. Zamonaviy tadqiqotlar gemorragik vaskulit patogenezida IgA asosidagi immun komplekslar va yallig‘lanish mediatorlari yetakchi ahamiyatga ega ekanligini ko‘rsatmoqda.

Diagnostika jarayonida klinik belgilar yetakchi o‘rin tutadi, biroq laborator ko‘rsatkichlar, xususan C-reaktiv oqsil, eritrotsitlar cho‘kish tezligi hamda neytrofil-limfotsit va trombotsit-limfotsit nisbatlari kasallik faolligini va og‘irligini baholashda muhim qo‘shimcha mezon sifatida xizmat qiladi.

Tadqiqot shaffofligi. Tadqiqot homiylik qilinmagan. Qo'lyozmaning yakuniy versiyasini nashrga taqdim etish uchun faqat mualliflar javobgardir.

Moliyaviy va boshqa munosabatlarni oshkor qilish.

Barcha mualliflar tadqiqotning konsepsiyasi va dizaynida hamda qo'lyozmani yozishda ishtirok etishdi. Qo'lyozmaning yakuniy versiyasi barcha mualliflar tomonidan ma'qullangan. Mualliflar tadqiqot uchun hech qanday to'lov olmaganlar.

Muallif(lar) haqida ma’lumot:

Raxmanova Lola Karimovna, ORCID ID: 0000-0001-7361-9953; Scopus Autor ID:57218897552, tibbiyot fanlari doktori, professor, e-mail: lola.rahmanova61@mail.ru. Toshkent davlat tibbiyot universiteti Oilaviy tibbiyotda bolalar kasalliklari kafedrasi professori. 100109, O‘zbekiston, Toshkent sh., Farobiy ko‘chasi 2, tel.: +998998500306 (maqola uchun mas’ul muallif).

Boltaboeva Muqaddas Mashrabovna, ORCID ID: 0000-0002-8389-2942; tibbiyot fanlari falsafa doktori (PhD). e-mail: mironshoh.khayrullayev@mail.ru. Andijon davlat tibbiyot instituti Gospital pediatriya kafedrasi assistenti. 170127, O‘zbekiston, Andijon, Yu. Otabekov ko‘chasi 1, Tel.: +998882725055;

Nizamutdinov Avazbek Ma’rufjonovich, ORCID ID: 0000-0003-8089-2043. assistent, e-mail: nizamutdinov.avazbek@mail.ru. Andijon davlat tibbiyot instituti Gospital pediatriya kafedrasi assistenti. 170127, O‘zbekiston, Andijon, Yu. Otabekov ko‘chasi 1, Tel.: +998916138731.

About the author(s):

Lola K. Rakhmanova, ORCID ID: 0000-0001-7361-9953; Scopus Author ID:57218897552, Doctor of Medical Sciences, Professor, e-mail: lola.rahmanova61@mail.ru. Professor, Department of Pediatrics in Family Medicine, Tashkent State Medical University. 100109, Uzbekistan, Tashkent, Farobiy Street 2, tel.: +998998500306 (responsible author for the article).

Muqaddas M. Boltaboeva ORCID ID: 0000-0002-8389-2942; Doctor of Philosophy in Medical Sciences (PhD). e-mail: mironshoh.khayrullayev@mail.ru. Assistant, Department of Hospital Pediatrics, Andijan State Medical Institute. 170127, Uzbekistan, Andijan, Yu. Otabekov Street 1, Tel.: +998882725055;

Avazbek M. Nizamutdinov, ORCID ID: 0000-0003-8089-2043. assistant, e-mail: nizamutdinov.avazbek@mail.ru. Assistant, Department of Pediatrics, Hospital of Andijan State Medical Institute. 170127, Uzbekistan, Andijan, Yu. Otabekov Street 1, Tel.: +998916138731.

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